The Journal of the
American Medical Association

VOL. XXX. CHICAGO, ILLINOIS, MAY 7, 1898. No. 19.

ORIGINAL ARTICLES.

THE CLIMATE OF COLORADO FOR RESPIRATORY DISEASES.

BY CHARLES DENISON, A.M., M.D.
Emeritus Professor of Diseases of the Chest and of Climatology, University of Denver; Ex-President of the American Climatological Association, etc.
DENVER, COLO.

PART I.—THE ATTRIBUTES OF CLIMATE AND AIR-RAREFACTION.

The request of our Chamber of Commerce Committee, to give the facts concerning the kind of climate we have in the vicinity of Denver, is complied with reluctantly, only because the author fears his inability to do the subject justice in the space allotted. The evidence depended upon is too voluminous to mention at all, and the author will have to refer the reader to his other writings[1] for the details, and to state some positive conclusions, which might otherwise be challenged if they were not based upon a twenty-four years residence in Colorado, in which time some thirty-five hundred pulmonary cases have been recorded. Experience is what tells, and the experience of the medical profession in Colorado unquestionably sustains the conclusions here presented. We may differ as to the advisability of inviting the weaker, the invalid class to come out here and live. The fact remains, however, that our recovered invalids have ceased to be a detriment to the communities in which they have mingled and that they constitute, in a large degree, the life and success of our new civilization. It is therefore with hope and confidence that we refer to the proofs which substantiate our experience in this elevated section.

Before proceeding with the summary of the evidence on hand, let it be admitted that some medical minds are not wholly in accord on the question of climatic effects in the causation and cure of disease, probably because of local bias or that their estimation of the attributes of climate is measured by a limited experience. This is unfortunate, but has to be admitted if any credence is to be given to such medical gatherings as the late "Congress of Medico-Climatology, Auxiliary of the World's Fair." At that meeting reports were presented from widely separated districts, high, low, inland, sea bounded and both within and without the United States. These reports were so exaggerated in praise of each special locality represented, that the listener, without a settled basis of judgment as to preferable climatic attributes, would be deceived into acquiescence to absurd propositions in turn alike contradictory. This going into the minutiæ of local weather statistics (as the daily range of temperature, or the extremes reached in a given month or year) as many have done, is of questionable use.

Such a mass of unessential particulars, however laboriously tabulated, only consumes time in its study and detracts from the consensus of knowledge needed.[2] [3]

Climate has to do with many special diseases, and its effects upon kidney diseases, the nervous system, age, sex and occupation would be instructive if time permitted to consider them; but we are now to study chiefly the class of diseases with which climate has both the greatest causative as well as curative effect, namely:

Chronic pulmonary diseases.—This study[4] of the air with regard to the causation and cure of respiratory diseases ushers us immediately into a controversy which has more than any other occupied the attention of climatologists for the past thirty years. It is the question of air pressure and the susceptibility or adaptability of the human organism to it under varying states of health and disease. Without seeming to controvert the great general argument, that of purity of atmosphere, always used by those who do not admit the importance of this air pressure consideration (for the pure air argument is an admitted issue and needs no proof), the question of altitude or sea level pressure can not, we believe, be ignored in the climatic prescription we are required to inscribe

The purpose in the following presentation is to ignore any given locality and consider the chief attributes, those variously considered as most effective in the production of what is called climate. These are; 1, elevation above the sea (rarefaction); 2, dryness of the air, both absolute and relative; 3, temperature of the air, whether cold, cool or warm; 4, sunshine, its preponderance or average daily duration at a given place, which introduces the important questions of cloudiness and the diathermancy (clearness) of the air; 5, the winds which introduce many correlated causes, such as the seasonal changes, the configuration of the earth's surface at a given place, the ocean tide, storm winds, daily or periodical currents of mountain or sea air, etc; 6, the character of the soil, which is of great importance with reference to the proportion of forests to dry land, the contiguity of the sea or large bodies of water, and the general configuration of the earth's surface; 7, the variability or equability of the

[1] "The Rocky Mountain Health Resorts," Cloth and Paper covers. Houghton, Mifflin and Co., Boston, Publishers. Descriptive of the interior health resorts of the United States. "The Climate of the United States in Colors." The W. T. Keener Co., 95 Washington St. Chicago, Publishers. A graphic description, in twelve colored charts and eleven tabulations, of over 8,000,000 separate observations of the United States Signal Service Bureau, given in Annual and Seasonal representations of cloudiness, temperature, rainfall, winds and combined humidity statistics, for the professional and lay reference. "The Preferable Climate for Consumption." Congresses of 1876 and 1887. Somewhat elaborate arguments founded upon the analysis of climatic attributes independent of locality.

[2] To be commended: A recent historical and geographical study of the climates of that part of the world inhabited by the English-speaking people, issued by MacMillan and Co., London and New York, on "The Treatment of Lung Diseases by Climate," by Dr. C. Theodore Williams.

[3] "A Handbook of Medical Climatology" by S. Edwin Solly, M.D., M.R.C.S., Lea Bros. and Co., Publishers, Philadelphia and New York 1897.

[4] Largely drawn from the Author's article on "Climatic Treatment," in Foster's Practical Therapeutics.

air-temperatures, which are largely relative, the former to altitude and the latter to the sea; 8, the electric condition of the atmosphere, which mysterious agent is also decidedly relative to mountain and sea currents, but which is none the less important as affording desirable stimulation.

In choosing from such attributes the most desirable combination for the arrest of lung disease, the writer feels called upon to explain why he does not place altitude the most important of all, at the head of the following list. It is; 1, because altitude shows its effect upon each important attribute, and thus in a fair analysis gets a reasonable allowance of praise; 2, because the special consideration of altitude is needed in presenting air-rarefaction as a potent force in treating respiratory diseases, hardly second, by itself, to any other attribute, yet at least entitled, in the minds of the majority of physicians, to hold the third place in such a classification.

Dryness is preferable to moisture.—We should have a line of demarcation between these two opposing qualities of the atmosphere, so that there could be no confusion in the use of the terms dryness and moisture. It seems that the average of the combined hygrometric conditions of the atmosphere, for the whole inhabited portion of the country, is a fair criterion between these two opposite conditions, and we will accept this as the line of definition between dryness and moisture. Temperature must be accounted for, as the capacity of the air to hold moisture varies so greatly, according to this record, the variation being from about one-half grain of vapor to the cubic foot, at zero, to nearly twenty grains at 100 degrees F., when the air is saturated. This was the foundation of the writer's rule for the determination of moisture and dryness.[5]

This rule was based upon a calculation of a table representing the average of the combined humidities of the air (cloudiness, absolute and relative humidity) for the whole United States, and for every degree of temperature. The average of these three evidences of humidity were found to be 44.5 per cent. for the time (average proportion of each day) the sky was clouded, 67 per cent. of saturation, for relative humidity, and, consequently, 67 per cent. of the weight of vapor the air could hold, for absolute humidity.

The graphic illustration of this rule on colored maps, compared with mortality statistics, shows that the arrest of consumption is far more surely to be accomplished as you go toward the extreme of dryness, from the mean, than toward the extreme of moisture. Indeed, it is the very moist climates which furnish most of the cases to be arrested in the dry sections.

The chief argument in favor of atmospheric dryness is based upon the increased transpiration of aqueous vapor from the lungs, in a degree according to the dryness of the air breathed. The germs of disease need warmth and moisture in which to live and flourish, a climate tempered and constituted according to the requirements of their peculiar existence. It is reasonable to infer that the preference shown by tubercle bacilli for a *locus habitandi* in pulmonary tissue is in no small degree governed by the catarrhal or other products of inflammatory change which clog or close the air cells and connecting tubes. If these secretions or morbid products could be removed at the same time the bacilli which inhabit them were thrown off, the result would certainly be salutory. These could be so expelled if they could be reached by the inhaled air, and this in turn had the requisite absorbent power. This absorbent power is just what the inhaled air possesses through its quality of dryness, and in proportion thereto. Absorption takes place through the difference in percentage of saturation (relative humidity) between the inspired and the expired air, and also much more through the difference in quantity (absolute humidity) between the moisture inhaled and that expelled. This especially takes place if cold air is inhaled, which is raised to the temperature of the body and then has greater power for holding moisture. Valentine, Sanctorius, Lavoisier, Seguin, Dalton and others have investigated the subject of transpiration, but not to differentiate between persons at different altitudes and temperatures. In this analysis of humidity statistics, ("Moisture and Dryness") the writer made an attempt to compute the difference in transpiration. He took Draper's statement as the basis of his calculations, namely, that the dew-point (the temperature at which the vapor present would make saturation) of the expired breath is 94 degrees, F. Three kinds of estimates were made by way of comparison.

1. Difference in vapor transpiration between a warm moist (Jacksonville, Fla.) and a warm dry climate (Yuma, Ariz.), of about the same elevation and temperature. This calculation, for an ordinary sized man, gave for Yuma, 3937 grains vapor exhaled, and 3073 for Jacksonville, or an excess for Yuma over Jacksonville of 864 grains a day, when no exercise was taken. When one makes allowance for the increased respiratory activity due to exercise, he can realize the still greater difference in transpiration as shown by Dr. Edward Smith's statement that, "one at sea level, walking at the rate of three miles an hour, consumes three times as much air as when at rest." The ordinary exercise of a man would make this difference in transpiration under the given conditions equal to about a gill in twenty-four hours.

2. When we make this calculation for places of different temperatures and elevations, the evidence becomes still more conclusive, for cold is probably the most important factor in the production of dryness, and elevation is not far inferior, because it, in turn, produces cold as well as expansion in the volume of the air. It is right to allow for the elevation an equivalent to the proportionate rarefaction of the air, that is, if the pressure is one-fifth less (twelve pounds to the square inch) at Denver than at Jacksonville, then one-fifth more air will be breathed at the former station. In this calculation we will assume a good sized man, 30 years old, as breathing both in Denver and Jacksonville twenty breaths a minute and thirty cubic inches to a breath (Dr. Grehant), ordinary exercise included, and for the same season at each place. This gives by the same method of reckoning, vapor exhaled above that inhaled in twenty-four hours, 8900 grains for Denver and 4939 for Jacksonville. This is an excess of transpiration of moisture in favor of Denver of 3961 grains, or over 8 ounces, in twenty-four hours. Two important considerations would further add to this effect in favor of the high altitude station: *a*, the expansion of the air, in being raised in the respiratory tract from the lower temperature of the atmosphere to the higher temperature of the body; *b*, the increased amount of

[5] "Moisture and Dryness." Report made to the American Climatological Association, 1884. Rand, McNally and Co., Chicago.

exercise naturally indulged in at the higher station, due to the stimulation of the cold, and the possible electric influence, quickening and deepening respirations.

3. For the purpose of still further comparison, it is instructive to take a cold, dry place in winter (Cheyenne, Wyo.) and a warm, moist one in summer (Charleston, S. C.) on the same basis (though Cheyenne is a little more elevated than Denver). The calculation results in vapor exhaled above that inhaled in twenty-four hours, 9881 grains in Cheyenne and 3615 in Charleston; excess of respiratory evaporation in favor of Cheyenne in winter, over Charleston in summer, is 6266 grains. If the two modifying effects previously mentioned were to be taken into consideration, together with the usually increased activity of the respiratory organs in such cold, as compared with such warm weather, the result would show for Cheyenne in winter a daily passing of vapor from the lungs of at least a pint more, than for Charleston in summer.

Coolness or cold is preferable to warmth or heat. The importance of cold in the composition of the curative atmosphere we seek is hardly less than that of dryness. In fact the two are so interdependent and necessarily associated that they can not be easily separated. If the thermal units coming from the combustion of effete material which should be thrown off through the lungs may be considered as indices of the natural cleansing of the system, then the tremendously augmented expenditure of heat units required in cold climates to maintain an equilibrium of bodily temperature must be credited for this great purifying influence. This potent effect is still further increased by the greater transpiration of vapor from the lungs in dry, cold climates, above proved to take place, because such transpiration is represented by the latent heat of vaporization, also necessarily thrown off. This temperature problem naturally introduces the following considerations:

1. How much atmospheric humidity is influenced by the element of temperature is shown by the sensory effect of cold. It is through conduction chiefly, that the body parts with its heat. Evaporation and radiation together do not equal this power of conduction, which the atmosphere, in common with everything that touches the body, possesses. Now, the conductivity of the air depends greatly upon its moisture. It is with the air as it is with solid substances. A bar of iron feels very much colder than the same shaped piece of dry pine, though they both may be of the same temperature. The iron is by far the better conductor, just as moist cold is, compared with dry cold air. To those who have never previously experienced a dry, cold and sunny morning on the eastern slope of the Rocky Mountains, there is a deception in the sensation of cold, which is equivalent to from 15 to 20 degrees. One seems to be in a much warmer atmosphere than that in which he really is. Temperature then is a relative attribute, and can not be considered as independent of humidity. Besides, the drying effect of cold upon the atmosphere, low temperature will be found to have other useful effects in the arrest of consumption.

2. Heat expands the air, so that the contrast between the temperature of the atmosphere and that of the body indicates the swelling effect cold air produces when full breaths are taken. Any doubt about this may be settled by trying the simple experiment of breathing one's utmost into a spirometer in a heated room when the air is frozen outdoors. Then step to the door, take a full breath and try again; the difference should in part indicate the expanding force heat imparts to the inhaled air. This lung-stretching capacity of inhaled cold air is especially appreciated by those who hold that it is most often the lack of use which paves the way to infiltrations or tubercular deposits in the tops of the lungs. It is to such secluded places in the lungs that the expanding air carries the evaporating influence of dryness.

3. Cold stimulates and heat depresses. This is a generally accepted proposition, which needs no extended elaboration. The sensations themselves are a good guide, and the colder the air the more stimulating it is. "A bright sun and blue sky overhead, a clear and quiet atmosphere, distant sounds transmitted to the ear through the still air, combine with the charms of the scenery to produce such buoyancy of spirits that a man is braced and invigorated for almost any exertion." (Dr. A. Tucker Wise in "Alpine Resorts.") It is in harmony with this stimulating effect of cold, that the respiratory function is diminished in activity in hot climates, and an increased amount of blood is found in the lungs of residents in cold countries, as shown by Parkes, Rattray and others. Dr. Francis, of the Bengal army, found, from a large number of observations, that the lungs were lighter in Europeans in India than the European standard. The increased quantity of blood circulating through the lungs means increased oxidation of the blood and renewal of tissue. The pulmonary lymphatics join in the increased activity, the nervous system is exhilarated, and the whole nutrition is improved.

Cold not only stimulates and encourages needed exercise, but under certain conditions it may result in a desirable sedative effect. The sleep which comes at night after a day's exhilaration and excitement induced by cold is the most refreshing of all rest.

The influence of cold in destroying or impeding germ life, especially the life of the bacillus of tuberculosis, is a most important consideration. This is diametrically opposed to the fostering of nearly all germ life by moist and mild heat. If one has ever "camped out" on the top of a Rocky Mountain pass, he will never forget the stillness of that insectless and germless locality. The nightly freezing of the air, together with its dilution through lessened air pressure, is enough to render germ life impossible. But the best evidence is that which has reference to the climate and natural life conditions of the bacillus, limited as they are to a narrow range of temperature.

"The air we inhale does not perhaps so often contain the fully developed bacillus as is supposed by many people, for this microbe does not thrive in the air at the usual temperature, but requires, according to Koch, a temperature approaching that of the human body. Its growth entirely ceases below about 82 and above 107 degrees F., and it thrives best at about 98 to 100 degrees, while other pathogenic microbes have a much wider field—for instance, the anthrax bacillus, which grows luxuriantly between 67 and 74 and up to 110 degrees."[6]

The study of seasonal effects in phthisis shows the salutary influence of cold. This may appear strange to those people of the North Atlantic, Middle and Lake States who flee south in terror of the winter

[6] Dr. Weber, in the "Croonian Lectures on Chronic Pulmonary Phthisis."

weather. True, yet do not thousands yearly leave moist England for a winter stay in the frozen uplands of Switzerland? The force of this consideration is not appreciated except through a recognition of the importance of dryness. Notice on the winter seasonal map, previously referred to, the prevailing northwest, west and southwest winds, some one of them everywhere moving toward the great interior lake region of the United States. The cooling of these air currents, causing condensation of vapor, with the addition of moisture already existing, is enough to produce cloudiness in this interior lake section for from six to eight-tenths of the winter season. The effect of the cold moisture renders this a climate to be avoided by enfeebled lungs. However, where the other attributes—dryness, elevation and sunshine—are favorable, the winter is the best time of the year for most consumptives. In cases suitable for positive treatment, these favorable climatic conditions, by means of this cooler temperature, can be increased to a climax of success not otherwise obtainable. The experience of invalids in Colorado bears out this conclusion. It is to secure the cooler temperature in summer time that some of the consumptive patients from the plains are sent higher up to the parks and divides of the Rocky Mountains. The effect of the change is very generally good, and a tubercular fire, which had rekindled in Denver on the advent of warm weather, has been arrested, as appearances indicated, by a sojourn in a cool park 8000 feet above the sea.

Rarefaction is better than sea-level pressure.—The consideration of elevation is divided into: 1, the effect upon other climatic attributes. Then aside from this there is the mechanical effect of rarefaction; 2, the physical influence upon man in health; 3, the influence in disease and the experience of invalids; 4, the evidence of a certain immunity from consumption.

We have already referred to the influence of rarefaction in producing dryness and coolness. Its effect upon sunshine, diathermancy, variability of temperature, wind movements, radiation, evaporation, etc., will appear as we proceed. The expansion of the air is equivalent, in degree, to any given elevation. The additional space occupied carries with it its due proportion of atmospheric moisture. In localities favorable for health resorts, this deprivation more than counterbalances the condensation of vapor by cold. The result is a total decrease of moisture, which is shown by a small percentage of cloudiness, a low relative and a very small absolute humidity. Then through its expansive effect as well as by its influence upon other producers of dryness, elevation is a powerful agent in controlling atmospheric humidity. As to temperature, elevation has a constant effect in the production of cold. It is differently estimated by authors, but does not vary greatly from about 3 degrees decrease in heat for each 1000 feet rise in elevation. In some favorable localities, such as the eastern slope or base of the Rocky Mountains, this lowering temperature is neutralized by local conditions, such as the excess of sunshine, the character of the soil—being dry and sandy—and the protection of mountain ranges, which drain the western, humid air currents of their moisture, so that the isotherms, as a given elevation is reached, continue directly in a western course until the very high mountains turn them southward.

The physical effect of rarefaction upon human beings.—Dr. Jourdanet, of Paris, gave us a most complete and elaborate exposition of the physiologic effects of the diminished air pressure, and not content with this analytical investigation, he induced Paul Bert to work out by experiment, chiefly on the life of birds, the effects of the equivalents of various elevations, even up to starvation limits, as to the supply of oxygen. These and many other studies might be elaborated if space permitted. Ignoring their trivial differences, we will state only settled conclusions. Lessened atmospheric pressure leads to an equivalent loss of oxygen, which deficiency, Parkes, in his "Practical Hygiene," says is not felt by animals till a rarefaction equal to 14 per cent. is reached. This loss is about equivalent to an elevation of 10,000 feet, and many animals do begin to live an abbreviated existence at this height. But there are previous effects which man can appreciate all the way from 3000 to 6000 feet, at which latter limit the air is one-fifth rarefied. This appreciation, in a state of rest, is from nothing to considerable, according to the sensitiveness of the heart or lungs, or both of them. There is an adaptability of these organs in perfect health which more than compensates for a rarefaction of one-fifth, so that only a pleasant exhilaration is felt, even with moderate exercise. Much exertion strains this adaptability, and a degree of breathlessness may be reached, which indicates a decided deficiency of oxygen compared with the immediate requirements. However, it is not the point of injury or danger that is here referred to, but the altitudes which produce healthful and well-borne respiratory activity when at rest and even during moderate exercise. The effects of altitude vary according to the pulmonary or cardiac susceptibility of an individual, and are divided into, 1, first effects; 2, permanent effects or acclimatization.

On the arrival of a healthy individual in a high altitude, say a mile above sea level, there is first an increase, both in frequency and depth of respiration. When adjustment to the new conditions has taken place, which requires a variable period, according to the altitude and the individual, the respirations are not nearly so much increased in frequency during rest, but the depth of breathing is habitually greater. This is shown by the large spirometric records of those who reside at great elevations, and the increased size of their chests both in adults and children. This is farther shown by the necessity of the climatic change to supply the usual, if not augmented, demand for oxygen, which is to meet an increased combustion or change of tissues. The increased exhalation of carbonic acid and the lower air temperature, as well as the increased chest measurements in those invalids who are not so far advanced in disease but that the affected lung tissue can be returned to use (an effect noted in the writer's cases, as well as those of C. T. Williams, Weber and others), are in perfect accord with the habitual use of more air for all the purposes of living in high altitudes. The heart and lungs having a reciprocal relation to each other, are both proportionately more active. In imperfect respiratory states, such as incipient consumption, the impeded circulation feels the stimulation, especially in those portions of the body which were the least active before—in the lung periphery and the capillary system generally. The result is a more perfect circulation of the blood and oxygenation of tissues, also of carbonaceous and effete materials. The supply and waste are more completely attended to, and the "sewer work" of the respiratory system is more complete. There

is a change in the relative density of the air in the lungs, due to this increased activity and to the fact that the air breathed is rarefied. There exists an alternate greater pressure or density of the air with expiration, and diminished pressure or rarefaction during inspiration, with each respiratory act, compared with the air pressure outside the body, and also compared with the usual change of density of air in the lungs during respiration at sea level. Here is found the best form of "pneumatic differentiation" because it is natural. This increased outward pressure within the lungs is especially salutary in the chronic thickenings, etc., of the lining membranes of the air cells and bronchial tubes, and it has a tendency to open up passages closed by disease and non-use to the entrance of pure, dry air. Some of the worst cases of consumption are those where the air can not reach the microbes or morbid products.

The augmented respiratory activity.—This with the rush of blood into and through the pulmonary capillaries, which seem to disturb the judgment of a few physicians with reference to the liability to the occurrence of pneumonia or pulmonary hemorrhage in high altitudes, requires some further explanation.

There is no cause for fear of hemorrhage if proper precautions are taken as to extreme elevations and the character and stage of the disease existing in the lungs. There should be no spots of softened lung tissue, especially near the root of the lung which have not had time to be protected by nature's great conservative process—the deposition of fibrous or hardening tissue. Only those patients should be sent to very high places who can bear the rapid expansion and augmented circulation without rupture of blood vessels. In portions of the lungs where there is no softening this increased pressure acts helpfully on the distended vessels, just as a properly adjusted bandage does on a swollen limb. The alternate crowding of the dry air against hypertrophied or diseased alveolar walls, and the suction directly applied through the push given to the circulation, tend to clean out the products of morbid processes and relieve congestion. There is, as mentioned by Dr. C. T. Williams, 1, hypertrophy, or more complete development of certain portions of healthy lung tissue; 2, emphysema (dilation) of other portions, especially of those in the neighborhood of the consolidations and cavities. This increased action and the stretching help to isolate caseous or tubercular portions, prevent the spread of infection, and promote cicatrization or fibrination of the affected parts.

As to pneumonic and hemorrhagic cases, the writer's later experience tallies well with that tabulated in his report to the International Medical Congress of 1876, in which were presented his first records of 202 consumptives who had spent a total of 350 years in Colorado. The pneumonic cases and the hemorrhagic, without cavity, were by far the best influenced of all varieties. Very acute cases, during the time inflammation or hemorrhage is active, need to be treated upon the rest principle, and such should be excepted from the foregoing.

Altitude of immunity from phthisis.—There is presumptive proof that those climatic conditions which prevail where phthisis seldom or never originates are best suited to arrest the disease when it has commenced elsewhere. Reference must be briefly made to the considerable evidence of medical writers in favor of an altitude of approximate immunity from consumption which, with us in America, ranges not far from 8000 feet in the southwestern part of the United States; to nearly 5000 on our northern boundary.

As to the quality of the climate which affords this partial immunity, Jaccoud of Paris, says, "altitude is the most important element; climates with a high altitude, having tonic and stimulating effects, can alone confer on the inhabitants absolute or relative immunity from pulmonary phthisis." While altitude is the governing element, all the associated favorable conditions of the atmosphere, somewhat in the order in which we have named them, seem to go hand in hand until they reach a climax of success in conferring a more or less complete immunity from consumption upon the residents at the given altitude. In illustration of this influence, the records of mortality from phthisis in the city of Denver and in Colorado generally, might be cited. Up to the year 1896, out of twenty deaths from this disease, eighteen or nineteen were from the imported cases, a fact which should always be taken into account as explaining the mortality from consumption in this State. Since the date given, the consumptive mortality in the city of Denver has shown an increase undoubtedly due to local conditions in which a greater liability to infection has to be admitted. Even thus the proportion of indigenous cases of tuberculosis to all deaths is now and for some time will continue to be far below that of any American city of like size.

Sunshine is superior to cloudiness.—There is little necessity of advocating the utility of sunshine. Proof is sufficient, but is necessarily combined with that of other climatic attributes. Every one acknowledges the benefit of sunshine, though in summer time he may have a personal preference for shade. Undoubtedly the effect of light upon man's physical and moral well-being is analogous to the fructifying influence of the sun's rays upon the vegetable kingdom. All life depends upon sunshine, and for successful existence must have it. The proportion of sunshine to cloudiness depends on the length of the day, on the exposure of a place, as on whether or not it is concealed in a valley, and on the cloudiness of the sky. The distribution of clouds in the United States is computed by the Signal Service Bureau in tenths of obscuration of the sky, and from these observations the percentage of cloudiness, and conversely of approximate sunshine, may be noted for the whole country. Reference is made to the first of the charts in the "Climates of the United States, in Colors" already referred to, for an eleven year average of the distribution of cloudiness. The variations of cloudiness range from above 60 per cent. of the time over the interior lake region down to less than 30 per cent. in the southwestern portion (New Mexico and Arizona). Taking so broad a field into calculation, a striking harmony is noted between cloudlessness or sunshine, and other favorable attributes. They all go together. A preponderance of sunshine should be mentioned as favoring the possibility of the desirable outdoor life, and also of camping out in summer time.

(To be continued.)

Hooks for Mastoid Operations.—P. J. Zaalberg has devised a couple of rake-like hooks to hold the soft parts spread in these operations. The hooks are slipped into knots at the ends of a piece of rubber tubing that passes around the head. The teeth of one are so arranged as to form an angle of 30 degrees with the pulling line, thus holding the parts without drawing them up.—*Cbl. f. Chir.*, April 2.

MEDICAL OR TISSUE ASEPSIS.

Read at the Thirteenth Annual Meeting of the Fifth District Branch of the New York State Medical Association, held in Brooklyn, N. Y., May 25, 1897.

BY T. J. McGILLICUDDY, A.M., M.D.

NEW YORK, N. Y.

MOTTO:—CLEANSE AND STRENGTHEN.

Medical asepsis is but the inward application of the principle contained in the ordinary surgical asepsis, supplemented by the enhancement of the bactericidal properties of the blood serum. The words cleanse and strengthen include all the essentials of tissue or medical asepsis. Wherever water will flow, no matter how small the stream, it will cleanse, and the cleansing power will be proportionate to the size and number of the streams. Water has been used for ages for its curative action in disease, but not, to my knowledge, with the idea of establishing an aseptic condition of the tissues by effecting and maintaining tissue cleanliness. While to many, the presentation may seem a novelty, it is founded on years of careful study and practical application. The absence of any authorities on tissue asepsis as such, and its proven value in practice, will be sufficient apology for this paper.

Tissue asepsis has become, in my practice, a firmly fixed principle of treatment, both capable of absolute clinical and practical demonstration and gratifying in its results. The skepticism with which the theory of internal or tissue asepsis may possibly be received will no doubt be based on a wrong conception of the conditions which require its use and an imperfect knowledge of its practical application. In the uncleanliness of the tissues we have the products of fermentation or decomposition absorbed either through the lymphatics or blood supply, or it may be inflammatory exudates or other products, which have not been eliminated by the fluids of the body. But if there is an increased ingestion of water of carefully regulated temperatures and in stated quantities, along with systematized exercise of the muscular tissues, then the fluids becoming more abundant and less dense will cause the waste of the body and the pabulum for the development of micro-organisms to be removed, with the result that finally a sterilized surface of tissue is obtained in many cases. In internal or tissue asepsis we can do no more in one particular than in external or surgical asepsis. By the latter, we can ordinarily only remove the detritus or debris, leaving a clean surface so that no micro-organisms can have food or habitation resulting in development. While in tissue asepsis we can not only cleanse, but in many cases, so strengthen and invigorate the tissues as to increase its resistance to the spread of infection. The cause of the grave results in internal disease is presence of decomposing exudates or retained nitrogenous waste products. These exudates or effusions undergo decomposition or putrefaction as the result of the advent of micro-organisms. Micro-organisms primarily and waste products and weakened tissue secondarily, are the two factors in the production of the decomposition or disease. Hence micro-organisms are not the sole factor in the cause of disease. The devitalized or deteriorated structure, effusion, or exudate must be present before putrefaction can take place, and where there is no putrefaction or decomposition there is no constitutional disturbance which in the body could imply the presence of non-vital tissues or exudates and micro-organisms. Devitalized structure, or those of lowered vitality often readily degenerate into pus, as the result of irritation, suppuration being the degeneration of imperfect or devitalized tissue caused by the inflammation, the result of the effects of the micro-organisms. As in an external wound we remove from the surface the materials which undergo septic changes in order to establish resolution, so in internal inflammation the need of tissue lavage is imperative and possible, and is immediately beneficial within the circulatory field. The filtration of water through the body is the result of definite physical and chemic laws, the nature and workings of which are becoming more clearly defined and understood, and it would be childish to presume that we have reached the limit of knowledge on this question, while in all other fields the searching torch is held aloft, seeking to enlarge the vision of the truth-seeker. The physical theory of medical asepsis is based upon anatomic and physiologic investigation, study and practice. One has but to thoroughly familiarize himself with the conditions which regulate the endosmosis of fluids through animal tissues in order to clearly understand the peculiar phenomena connected with medical asepsis.

If, in ordinary surgical asepsis, the value of the solvent properties of water is admitted, is it difficult to comprehend that the same properties and offices are not lessened by ingestion? It has been truthfully said that, with the exception of air, water is the most transient of all the elements received into the body. It is a general eliminator—nature's own cleanser. Its increased use augments the elimination of the waste of the body, increasing the metabolism of tissue, and in the words of Ringer "increasing vigor alike of body and mind." Our body corresponds exactly in many ways with artificial mechanism. The organs of secretion and excretion are similar in their action to an ordinary filtering apparatus. As the activity of filtration depends not only on the size of the pores in the filter, so the diffusion also varies according to the nature of the material of the porous body. The different membranes of the body can change their operations by the activity of the contracting tissues. This change is automatic; it completes and perfects other bodily functions. The amount of liquid increment equals the amount of liquid decrement in the urinary secretion, perspiration and watery vapor from the lungs. In speaking of the physiologic action of water taken inwardly, if we were to start at the very beginning and describe all the bearings that water has in the physiology of the body, while it might make one's conception of the elucidation of the method much easier, such a description is apparently unnecessary, as the important part played by water in the economy is well known to all. Still, a résumé of a portion of the subject is not out of place here.

Valentin says, "a filtrum is any porous material. The molecules of the body might be said to filter water in the same way that it passes through sand in the earth, taking up all sorts of minerals and earthy salts. When some kinds of freestone, powdered charcoal, flannel, or unsized paper are used, the fluid is passed through for the purpose of separating it from the material suspended in it."

Water, in passing through the body, gives up its salts in a similar way, and also absorbs the waste while in transit, which it carries out through the emunctories. Impure water brings disease to the tis-

sues; pure water carries it away from them. In studying the physical properties of the human body, the limitation of our senses, even with microscopic aid of the highest magnifying power, makes them insufficient to show us many of the minute but important constituents of the various tissues. The ultimate molecule is so small that the human eye can not see it. In the arrangement of every organism it moves in limited spheres. It is, as Valentin says, the smallest possible but independent, and by this arrangement there are many important advantages. Subdivision into the smallest masses is of advantage in the enlargement of the free surfaces, for thus more molecules of the solid and liquid substances are brought into mutual contact. The minute subdivision of the circulating fluid enables it to give off nutriment to the various tissues, and, making an exchange of gases with the atmosphere in the skin and lungs, its basis being water, it takes up the waste of the tissues by its solvent power. The endosmosis of fluids through the bodily tissues, following mechanical and chemic laws with an anatomic basis, allows the water to filter out through the tissues as urinary secretion or perspiration. Minute anatomy, physics and chemistry explain clearly the mechanics of medical asepsis. The cleansing function is increased when larger surfaces of the circulating fluid come in contact with the walls of the vessels; the enlargement of surface for bathing purposes, which is obtained by means of the capillary system and the minute lymphatics, is enormous. When we consider the chemic and physical properties of the tissues, the advantage resulting from their extremely minute division is readily shown. The suppleness and pliability of the organs depend in a great measure on the amount of water they contain, as when thoroughly dried by heat they are extremely brittle. Five-sixths of the body can be volatilized under moderately high temperatures.

In a consideration of the velocity of water filtering through the body, the form of the aperture of exit, the shape of the stream, the nature, diameter, and course of the tubes through which the fluid mass is driven, and the resistance of the bodies with which it meets on the way, the adhesions to the walls of the tubes and friction against them, are the important circumstances which control the degree of rapidity of the filtration. The fine canals which are found in our body are much more minute than any capillary tubes with which hydraulic experiments have been made. The fluid which is driven through them generally passes through the same medium. At other times, liquid masses are expelled into the air. The velocity with which a liquid flows through a capillary tube to pass into another uniform liquid, varies with the nature of the moving fluid. Warmth hastens the passage of fluid through minute tubes in a great degree. This explains why the higher temperature in warm-blooded animals is of great advantage in this respect, and why warm water is more readily diffusible and more readily absorbed. It also shows the reason the flow of blood in the cutaneous capillaries is retarded, or even checked, when the temperature of the skin is much lowered by the application of cold.

Every part of an organ is a mass which is traversed by interstices in all possible directions. The peculiarity of structure gives the tissues when dry the power of absorbing fluids, and the amount of the absorption or imbibition depends upon the nature of the organized body and of the fluid together with its temperature, the pressure and the duration of the operation. Watery solutions are inferior to pure water, since a certain amount of attractive force is expended in the powers of solution. Besides this, many fluids such as pure water and all incompletely saturated solutions not only penetrate the interstices of the organized mass, but can chemically take up some of its constituents and very essentially change others. The filter through which the fluid passes is a porous partition which first absorbs the liquid constituents of the fluid submitted to it. The pressure received by the numerous strata of the mixture then drives the fluid through the pores as through a system of fine tubes.

Very considerable amounts of pressure do not only increase the rapidity of transudation, but also extends the skin itself and by thus enlarging the interstices allows thicker fluids to pass through. The albumin of the serum of the blood is unable to pass with the pressure of a column of small height, but with increase of pressure it soon transudes. The evaporation which takes place through porous partitions, as in the lungs, constitutes a kind of inverted filtration. It is quite unnecessary that the liquid mass should be in immediate contact with an organized partition. If it can evaporate with the existing temperature and pressure, it saturates with its vapor the space of air above it, if an apparatus is used, and this vapor transuding the organized partition becomes free as soon as the exterior atmosphere has also become saturated though in a less degree. If the interstices of a porous body imbibe a fluid of any kind, it will, to a certain extent, be condensed when it is in immediate contact with solid walls. And if there are solid matters in solution these may to a great extent be kept back during the filtration.

The fundamental condition for endosmosis is the presence of fluids between which there exists an affinity, and which are separated by a porous partition. It is, therefore, only miscible fluids that are susceptible of diffusion. When fluids are driven through by mechanical pressure the resistance is greatly increased by a diminution of the diameter of the conducting tubes. If these tubes are of small caliber the influences which differences of hydrostatic pressure will exert on the two fluids may be disregarded as unappreciable. Under these circumstances diffusion is independent of hydrostatic influences. But where one fluid exerts a much stronger pressure than the other, the organized membrane will yield, acquiring larger pores, thus offering fewer obstacles to transudation so that there will be not only diffusion but also filtration. The behavior of the partition in respect to the form, size and subdivision of its interstices, and the attraction which its walls exert on the liquid which they contain is capable of great variation. They vary, not only in different animal membranes, but also in different portions of them. These circumstances influence the strength and rapidity of diffusion. The manifold character of the partitions through which are transmitted the liquids in our bodies, allow of an infinite variety of diffusive results, and as porosity is often affected by the influence of the nerves and other circumstances, the same membrane may at different times produce very different results.

When two different solutions are separated by a porous partition, a chemic attraction is added as another cause of diffusion. If thicker membranes are made use of in diffusion, such as the coats of the small

intestine, the aorta or vena cava. The simplest endosmotic fluid transudes in a very short time. In the living tissues diffusion is almost instantaneous when the necessary conditions are present. Abdominal pressure by manual treatment has an important influence on the absorption and diffusion of water taken into the stomach and intestines.

In the normal tissue, owing to its porous structure, there are numerous and mutual actions between the juices of the body and the fluids which come in contact with its organs. Special means of favoring these actions allow foreign solutions to be taken up and absorbed in large quantity. That solution of solid bodies, which is necessary to diffusion, may be affected by the organic mixtures themselves. The solutions first gain the nutritive fluid which soaks the tissues, and then pass immediately into the blood. It is often necessary that they should first enter the lymph and flow with this liquid through the absorbents or lymphatics and then become mixed with the blood; therefore, we distinguish between immediate and mediate entrance into the blood, or between entrance directly and entrance into the blood through the lymph. The porosity of animal membranes is capable of being altered by numerous circumstances. The relaxation of the limitary walls leads to the enlargement of their interstices. These may also be dilated under the influence of very powerful pressure. If, as an example of the absorption of the alimentary substances, we introduce into the stomach a large quantity of spring water containing .05 per cent. of solid residue, it will dissolve many organic matters which it meets with, and which the neighboring juices of the body retain in a less diluted form. The first current of diffusion is, therefore, concerned with a nutrient and secretive fluid which moistens the coat of the stomach. The blood which contains the most solid matter will act with greater energy than the lymph, which is more watery. The process of diffusion therefore, must continue until the densities of the two fluids become equal to each other. The blood and lymph of the wall of the stomach would thus become much diluted and the remainder of the contained water will be correspondingly concentrated. This is what would occur if the solutions remained at rest, but since the blood and lymph are in active movement, new portions of these dense mixtures are continually exposed to the operation of diffusion. This arrangement, therefore, which holds good for absorption generally assists in the interchange of fluids in a most important manner. The lymph flows more slowly than the blood, and this explains why the greatest part of the water we drink enters the blood and decreases the percentage of solid residue therein. That the purely physiologic method is sufficient to explain satisfactorily the phenomena of blood washing in the living body, a study of the processes through which water goes when taken into the system in absorption, and following it through to its final excretion is all that is necessary. The fluid secretions of the glands of the mouth and stomach contain about 99 per cent. of water, and yet after having extracted nutritive material from the food, they still contain more water than the blood or lymph. This explains why the more dilute solutions disappear so readily in the stomach itself. That the process of absorption goes on in the intestines is due to its large supply of blood vessels and lymphatics. The chief object of the lymph and chyle seems to be that of ensuring a normal mixture of the blood. When the blood passes through the capillary vessels of the various parts of the body, it allows the exudation of a fluid which is more diluted than its own serum. This fluid permeates the tissues, giving up to them the necessary nutritive substance while taking up or washing out the waste matter. In this way we get a more watery residuum, containing less of nutritive matter and more of the waste of the body. The absorptive canals are probably intended to withdraw this fluid, and their contents are improved by a process of diffusion with the blood, the lymph glands having a very essential function in this respect.

To recapitulate the subject of absorption:

During the passage of blood through the capillary system a very important series of changes take place in its ingredients. These ingredients, whether in the blood or lymph, are transformed to tissue, while at the same time they are replaced by other ingredients which are taken by absorption through the adjoining parts. Water is the basis of all the fluids of the body, and the phenomena of absorption, with endosmosis and exosmosis, depend upon it. Endosmosis is most active when the temperature is moderately raised; pressure also exerted upon fluids in the body favors their endosmosis; in fact, the imbibition of the waters by the tissues is an endosmosis, while its secretion and excretion is an exosmosis, or in other words, the whole process is simply a filtration through the body.

The process of endosmosis is essentially one of imbibition or absorption of the liquid by an animal membrane composed of organic ingredients. Over twenty-five pounds of the animal fluids transude through the internal membrane and are restored to the blood by reabsorption in the course of a single day. It is by this process that the natural constitution of the parts, though constantly changing, is still maintained in its normal condition by the movements of the circulating fluids, and the incessant renovation of their nutritious materials.

In medical asepsis our agents are the eliminatives; these are remedies which increase gland secretion, and the most important is water.

It is much more important, by working toward medical asepsis, to insure proper excretion and elimination in fever, than to rely on other means for reducing temperatures, as for many reasons it is not always wise to attempt to reduce temperature by drugs. We supply the system with alkalin salts in an abundance of water, in order to ensure proper excretion and to maintain the action of the kidneys, the bowels, and skin. Chlorid of sodium and the alkalin potash salts also tend to the increased elimination of urea. Laxatives are of value in medical asepsis, as, by ensuring proper excretion, there is an exosmosis toward the intestines, and the abnormal products present in fever are thus removed from the blood, in a great measure, in many cases. The temperature frequently falls, and great relief is experienced as the result of their use. The natural watery excretions of the skin and lungs are considerable, and nature increases these after imbibition of a large quantity of water. In the lungs, water diffuses through the mucous membrane and is evaporated. In bronchitis (and this is especially to be noted in children), the use of an abundant supply of water is extremely beneficial.

Böcker demonstrated that the blood contained more water in a quarter of an hour after swallowing large quantities of the fluid but that within half an hour there

was return to the usual amount. Lichtenstein asserts that, "even in the case of a larger quantity of water being absorbed in a short time and the intensity of the discharge of water from the body falling far short of the intensity with which it is taken in, the current of the blood protects itself from being overloaded with water, which does not distribute itself to the blood current alone, but to the fluids of the parenchyma all over the body. Water saturates and fills all tissues and tissue spaces." He italicizes the following assertion: "We have at hand in copious water drinking a means of subjecting the whole system to a powerful washing out. A consequence of this is the temporary increased excretion of certain products of change of tissue." The increase of salts in the urine after copious water drinking has been proved by the experiments of Beaqueral, Chossat, Lehmann, Genth, Mosler and Falk.

Does the increased current, which permeates the tissues after large amounts of water have been taken, favor the conditions for the decomposition of albumin? Does it increase this and thus augment the excretion of urea? Bischoff, Böcker, Voit, Hermann and others answer this in the affirmative. Winternitz says, "simultaneously with the increased discharge of water by the kidneys, however, the solid constituents of urine will be eliminated in greater quantities, particularly the urea. Metabolism in the nitrogenous formations of the body is therefore materially promoted thereby. The conclusion that oxidation increases and becomes more complete under the same influence, may be drawn from the diminution in the amount of and complete disappearance of oxalic acid, which before the increased supply of water was very abundant. Moreover the increased oxidation following increased water drinking may be proved, directly, by the increased carbonic acid excretion and assumption of large amounts of oxygen. Salts likewise and inorganic materials, such as the potassium salts, which chiefly spring from the metabolism of the muscles, the fire-proof salts of the bones, and the phosphates and sulphates of the brain and glandular functions are eliminated in great quantities. The universal stimulation of retrograde change and acceleration of tissue metabolism caused by increased methodical drinking of common water is still too little utilized in therapeutics."

Wm. H. Thomson in his recent lectures says: "One of the most important functions of the liver is the separation of effete nitrogenous matter from the blood; and the imperfect discharge of this function is always indicated sooner or later by the accumulation of urates and oxalates in the blood, and by an excess of uric and oxalic acids in the urine—a condition which, if continued, induces a gouty diathesis, biliousness, constipation, piles, slow digestion, loss of elasticity of mind, etc. Not infrequently patients with these symptoms, failing to obtain relief from medicine, go to a mineral spring or some hydropathic establishment, where they are markedly benefited: for water itself, if taken in sufficient quantity by increasing the fluidity and consequently the solvent power of the blood, is often an effective remedy in these cases."

George Henry Fox says, "it is quite certain that few people drink too much water, and I feel sure that many unpleasant feelings and symptoms of actual disease would quickly disappear if the sufferers only appreciated the value of this best and cheapest of all remedies. The interior of the body needs cleansing as much as the exterior, and a liberal supply of pure water in the treatment of our patients will often bring about the desirable results which drugs have failed to accomplish."

Lichtenstein says, "we make the most extended use of this washing-out power of water in therapeutics. When it is the object to bring exudations to absorption, to wash out accumulated particles from the blood and from the tissues, and to remove certain poisons from the system, and to wash out blocked-up urinary tubuli, copious water drinking may be used efficaciously in many cases. As water in large quantities is better borne by the stomach taken warm than cold, the use of the former is preferable and is more rapidly diffused."

Other excretions besides that of urine are influenced. The sensible and insensible transpiration of the skin is increased in many diseases. The cleansing action of cold water is familiar as exciting the peristaltic action and as an aperient.

The *New York Medical Journal* of October, 1894, contains the following: "Elimination of the diseased products is of extreme importance in all acute and chronic diseases. If the diseased materials are allowed to remain the growth of bacilli will be correspondingly great. When the vitiated matter is removed by elimination the disease can not be so severe, as then there is an internal asepsis which prevents bacillary development. The eliminating organ should be stimulated, and hot water is the blandest and most efficacious means of accomplishing it." In the *Medical Record* of Nov. 9, 1895, I also wrote: "If the constitution is improved and the pabulum upon which the bacteria thrive removed or its formation prevented, their development is hindered or entirely checked and thus the severer forms of inflammation are obviated. A plant can not grow upon a rock or thrive upon barren soil, and so it is with all forms of life even the minute organisms. The substances upon the surfaces of wounds which cause the development of micro-organisms and thus produce infection are readily removed by the most important and chief means for all sterilization, that is the mechanical purification by washing and cleansing with water. Why should not the substances in the interior of the organism, which are the pabulum for bacterial development, also be removed, at least to a great extent, through the channels of the body which terminate directly in the emunctory organs. It is quite possible that the sewage system of the tissues when properly stimulated in the work of elimination will carry along in its circulation much of the material which causes infection, and thus produce what might be termed an internal sterilization or asepsis. Many seem to think that because a germ has once entered the human body it can not be removed until it is thoroughly digested, but why should not cleanliness applied to the internal organs whenever possible aid in the elimination of micro-organisms?

Dr. Charles H. Shepard of Brooklyn published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION Sept. 14, 1895, an exceptionally able article on "The Bath in Modern Medicine," which should be read and studied by every practitioner.

Medical asepsis is the result of prophylaxis in the individual. By inhaling only pure air and by taking only sufficient quantities of nutritious sterile food into an aseptic alimentary canal the lymphatics and the blood are kept free from the irritating products of fer-

mentation or putrefaction. If decomposition is further prevented by a plenitude of the natural digestive secretions and pure water is taken in proper quantities and of stated temperatures along with the employment of regular systematized, strengthening exercise of the different bodily functions and with proper psychic conditions, medical asepsis is established and continued. A definite knowledge of the method of medical asepsis and its indications will alone lead to its satisfactory employment and the results will as in the use of any other agent be much more beneficial when it is methodically employed in a proper manner. Like other agents it has its limitations.

The following cases show the practical application of the principles here spoken of. In any method practical or clinical experience is the proper test upon which we must rely.

Case 1.—Sadie W., age 24, complexion fair, rather tall and slender, countenance pale; general expression heavy and listless; has a badly developed thorax and the muscles of the chest and neck are thin and also poorly developed. Family history good. Her occupation has been an indoor and sedentary one requiring a stooping posture, thus interfering with the respiratory function. The ventilation of her work room was also defective. For several years she has suffered with constipation and attacks of indigestion and biliousness. During the summer of 1895 she was feeble, easily fatigued and short-winded on going up-stairs. October 20 after a cold, a dry hacking cough came on which was much worse during the night from 2 to 4 A.M. Expectoration after a time became copious and muco-purulent. December 15 she was taken with an attack of pleuritis of the base of the right lung; after about a week pain came on also at the same place in the left side. During this time she was under the care of her family physician, who gave her the usual symptomatic treatment. Jan. 3, 1896, a specimen of her sputa showed the presence of tubercle bacilli. The patient continued to grow worse, and after giving a bad prognosis January 8 he turned the case over to me for treatment. I found the patient in bed with a temperature of 100, heart's action weak and rapid, heavily furred tongue, complete loss of appetite, constipation, shortness of breath, night sweats, hands and feet cold. Her menstruation had been absent for four months with the exception of one day. She had a disrelish for fats and wholesome food and had morbid cravings for pickles, pastry and strong coffee. The physical signs showed bronchial catarrh, a slight infiltration of the left apex and pleurisy at the base on two sides.

January 15 examination of the sputa again showed the presence of tubercle bacilli. January 24, after sixteen days' treatment, examination failed to show the presence of any tubercle bacilli. February 8, one month after commencing treatment, she was discharged as cured, entirely free from cough and with a good appetite, digestion, color and greatly increased in strength, flesh and spirits.

The treatment consisted of internal and external hydrotherapy, curative exercise, manual treatment (massage) and special feeding. The internal hydrotherapy consisted of the ingestion of two quarts of hot water daily, taken an hour before each meal and half an hour before retiring. After the fifth day the patient was required to go out daily for an hour or two, well protected, regardless of clouded skies, east winds or snow, for proper oxygenation of the blood. There is much more danger in staying in-doors than in going out into the fresh air, even when the patient suffers with some muscular weakness. It is a physiologic principle that the only way to retain or increase the muscular strength is by its daily use. No drugs were employed, not that they are not often useful and in advanced cases mitigate many distressing symptoms, but in this case they were not considered necessary.

To increase the vigor of the body in a constitutional disease like tuberculosis, which is also infectious, we should never depend exclusively on drugs, but adopt a course which will stimulate and assist nature to throw off the disease, and we should force the nutrition at the same time to the highest point with easily digested nitrogenous food and a sufficiency of carbohydrates. The great principles underlying oxidation, elimination and repair should guide us in the treatment of this very frequently fatal disease.

Case 2.—Fannie C., age 20, weight 125 pounds is a tall and anemic brunette with hectic flush. July 30, 1896, she stated that about two months previous she was taken with a dry and persistent cough. It occurred occasionally during the day. After a time it grew worse and became very severe at night, weakening her very much from loss of sleep. During one of these attacks of coughing a hemorrhage of the nose came on. About two weeks prior to my seeing her she was taken with an attack of vomiting; this caused a severe hemorrhage which quite exsanguinated her. She was compelled to remain in bed from weakness for five days. She complained of much soreness of the trachea and bronchi; bowels always regular; some tenderness in the hypogastric region; always menstruates excessively for five days.

On physical examination I found increased vocal fremitus over the lower half of the left lung. There is some dulness on percussion; abundant mucous râles. August 1 a specimen of her sputa showed the presence of tubercle bacilli. August 20 she stated her cough had ceased for four days. Under forced coughing she raised a little mucus which did not show the presence of any tubercle bacilli. She has gained seven pounds in weight, now weighs 132 pounds and is robust and strong. The treatment is similar to that in Case 1.

Case 3.—S. J., age 42. About twenty years ago this patient had attacks of diphtheria, scarlet fever and typhoid fever. After this she was troubled by a cough which lasted for a considerable time; this disappeared. About five years ago she had an attack of pleurisy which kept her in bed for three weeks; this left and was followed by a cough which came on gradually. She was seen by her physician, who said that she had "a general catarrh of the stomach, throat and lungs and phthisis." She gradually became worse, a large cavity forming in the right upper lobe. Last June she was in very bad condition, with severe night sweats, emaciation and frequent attacks of weakness; had three hemorrhages, one very severe. Her expectoration was very profuse and muco purulent. I placed the patient under careful dietetic treatment and the methodical use of internal and external hydrotherapy for relative medical asepsis. Cold baths were used for their tonic effect in giving exercise to the vasomotor system, with the result that her general nutrition was greatly improved. She had taken creosote and cod liver oil with no apparent effect. She has been under treatment for ten months with great benefit. She does considerable housework, feels very much stronger, has gained in weight and her expectoration is not nearly as profuse as formerly nor her cough so troublesome. She still has tubercle bacilli in her sputa.

Case 4.—S. M., age 30, rather short, stout, blonde; addicted to the beer habit; has an excessive craving for carbohydrate food. Two of her sisters died of consumption and her mother of cancer. I saw this patient April 21, 1893. There was some elevation of the temperature and an extremely rapid pulse. The tongue was dry and heavily coated and the teeth were covered with sordes. I found the left lung completely consolidated from apex to base with an unresolved pneumonia, from which she had suffered six weeks previously. She had been constantly under treatment by her physician during this time without appreciable benefit. I felt that the case was a serious one and that it would require the earnest co-operation of the patient in a careful regimen if recovery was to follow. The indulgence in alcoholics and carbohydrates to excess combined with her sedentary life, surcharged her system with the products of fermentation, and this acted as a predisposing cause to the pneumonic attack. I considered the case an excellent one to test thoroughly the resources of my method of treatment by medical asepsis, and I feel that had the treatment been continued for at least two months she would have made a perfect recovery. After but a few days' treatment the tongue became clear and moist, the temperature and pulse became nearly normal. The patient went about and in a month the exudation in the lung was apparently two-thirds resolved and was rapidly undergoing complete disappearance, when the family moved to a small town in the suburbs. The patient now took milk punches with no restriction as to carbohydrate, discontinued the method of internal asepsis and other strengthening modes of treatment, thus renewing the supply of fermentable material in the blood, which in the tissues

became the nidus and pabulum for micro-organisms, with the result that in about three months the patient was dead.

Case 5.—T. C. J., age 22, a telegraph operator. A sister and several cousins died of tuberculosis. He has been for years living on insufficient and improper diet, principally of improperly cooked carbohydrates. His cough was very severe; copious muco-purulent expectoration containing tubercle bacilli. Under a course of internal hydrotherapy, curative exercise, with an out-door life and manual treatment, and some correction of his dietary he made a slow but perfect recovery.

Case 6.—K. C., age 30, school teacher; several relatives died of tuberculosis. Owing to improper food, worry and hard work she became excessively anemic. There was a spot of infiltration with mucous râles in the upper lobe of the right lung. She was under the care of two physicians, who found tubercle bacilli in the sputum in moderate numbers. They gave a bad prognosis. Under internal hydrotherapy and careful dietetic management, increasing the amount of digestible proteids taken daily and without the advantages to be derived from mechanical treatment and external hydrotherapy, she made a rapid and complete recovery, having gained twenty-three pounds in weight within six months.

Case 7.—M. C., aged 20. When I first saw this patient in 1893 the left lung was consolidated as the result of an unresolved pneumonia; mitral regurgitation was also present as a result of rheumatic endocarditis which had occurred some years previously. There was apparently perfect compensation, the heart being only moderately enlarged. Her diet had been so insufficient in nutrient materials that nature had been unable to resolve the exudate which filled the lung substance. She had been seen by three physicians who gave a bad prognosis, nevertheless, under the method of tissue lavage in a very short time the lung cleared up perfectly. The dietetic treatment hastened the convalescence, and now, after four years, she feels perfectly well.

Case 8.—M. B., age 42. Jan. 20, 1897, when I saw him he had been constantly undergoing drug treatment for digestive derangement for the past eleven months; had but little appetite and digestion was poor; was much emaciated; extremely despondent. Under two weeks' treatment by internal hydrotherapy and manual treatment he entirely recovered, and says that he now eats and assimilates more at a meal than he formerly did in three weeks.

Case 9.—F. C., aged 22. A year ago last April, after an extreme hemorrhage following a miscarriage, she began to have a slight cough and pain in the apex of the left lung. She has continued to grow worse ever since. Her cough is especially troublesome at night. Shortly before consulting me her expectoration became very copious, frothy and muco-purulent. There were night sweats and chills; her appetite was very uncertain; she was very despondent. She takes four glasses of hot water daily with an increased quantity of proteid food, and two months after beginning treatment was very much improved in strength and spirits. Her cough is not now so troublesome as formerly and her expectoration is less copious and thinner.

Case 10.—P. H. M., aged 75; of vigorous constitution; has until this winter remained well, in spite of the consumption of large quantities of sugar, pastry and strong coffee, hard boiled eggs and fried steak. Has had two attacks of what was termed "grip," characterized by neuralgia, pain in the head, sweats and chilliness. His grip was simply the outcome of loading the tissues with the products of fermentation from a catarrhal digestive tract. His last attack was accompanied by severe vomiting and abdominal distension and tenderness. Under the use of hot water for two days his tissues cleared up, the epigastric tenderness became less pronounced and his appetite and digestion returned. He entirely recovered within two weeks.

Case 11.—B. A. W., age 54; consulted me May 1890. He has been in the habit of drinking three glasses of whisky before meals daily for the last eight or ten years. Eats nothing in the morning except tea and bread; at the other meals his food is wholesome. There is considerable tenderness over the epigastrium; his tongue is heavily coated; bowels regular; has gout in right big toe joint. I made local application to the toe joint and ordered him to drink very large quantities of a pure soft hot water daily. He has continued this and has had no trouble from the gout since beginning treatment—over six years ago.

Case 12.—W. H., aged 30; bookbinder. When I first examined this patient in February, 1896, there was considerable consolidation of apex of the right lung. He had had several hemorrhages and his cough was severe and distressing. The expectoration was profuse, muco-purulent and contained numerous tubercle bacilli. Under treatment he has gained in weight from 124 to 140 pounds. The apex expansion in the right side has increased very much and the consolidation has almost entirly disappeared; he coughs less frequently and the sputa is very scant and contains no bacilli. His color is ruddy, appetite excellent and he feels very strong. The treatment here also consisted of the establishment of relative medical asepsis by internal hydrotherapy, mechanical and manual treatment, along with a proper dietary containing much minced beef and milk.

Case 13.—Mrs. R., aged 38; is anemic, emaciated, neurasthenic and weak. Her appetite and digestion are poor and there is constipation and much flatulence. Under tissue lavage with the addition of manual, mechanical and dietetic treatment she improved rapidly in strength, and from 118 pounds in weight she increased within three months to 130, and says she has not felt so well in many years.

Case 14.—D. D., aged 38; engineer; works at night; family history good; had a severe attack of pleurisy in 1892, from which the convalescence was slow and imperfect; bronchitis was also present and the sputum was copious and muco-purulent. There was marked shortness of breath and diminished respiratory murmur over the front and upper portion of the right lung. The diagnosis of phthisis pulmonalis was made, but there was no examination of the sputum for tubercle bacilli. Under tissue lavage and dietetic treatment he improved and with the exception of occasional slight asthmatic attacks now enjoys fair health. At present there is no cough or expectoration.

Case 15.—M. G., aged 17; at college; is chlorotic and weak. She says that she has been delicate all her life and has consulted her family physician about once a week ever since she can remember. She has a number of malarial symptoms, flushes, perspiration and headaches; her appetite is very poor. She suffers with chronic constipation, and nearly every week has a sore throat. Micturition is frequent and her urine deposits large quantities of urates. There is no sugar or albumin; specific gravity 1015. After one month's treatment by tissue lavage, dietetic, manual and mechanical treatment she has gained in strength and weight. Her appetite is now excellent; she eats three good meals daily, and her color is greatly improved. During six months following the course of treatment she has gained thirty pounds in weight.

Case 16.—D. K., aged 23; two of his sisters are suffering with pulmonary tuberculosis, and three of his cousins have died of it. He began treatment Dec. 4, 1896. Works all night at in-door occupation. Weight 145 pounds; lung capacity 160 cubic inches; temperature 100; sputum contains tubercle bacilli; has had a cough for about a year which came on after taking cold. Last winter he had twenty hemorrhages; has had several since; has anorexia; bowels are regular. Physical signs show diminished respiratory murmur and increased vocal fremitus over the whole right lung, mucous râles at the base posteriorly. He coughs most on rising after sleep and the expectoration is over an ounce in quantity. There is considerable embarrassment of the breathing after exercise. Under partial treatment for two months the amount of sputum diminished to about two drachms, and though formerly it was purulent and often blood-streaked, it is now mucous and frothy and there has been no blood present since the treatment began. In spite of his night work he gained very much in strength and spirits, and there has been an improvement in the condition of the lung.

In a number of cases of typhoid fever treated during the last twelve years by this method, the disease has never been very severe and in no case has there been a fatal issue.

The same method was also followed out in all my diphtheria cases with almost uniformly good results. Local antiseptics were also carefully employed.

A large portion of the body, with the exception of the framework, the padding and the nervous mechanism, is muscle, either voluntary or involuntary, and is therefore susceptible to the means employed for strengthening muscular tissue. The respiratory organs, the heart and digestive tube, if not wholly muscle, functionate only through muscular activity.

Some of the points in this paper may differ somewhat from the views of many able writers, but we must study and reason for ourselves, forming our own conclusions and stating them clearly when possible, otherwise there would never be any advancement in medical science.

THE PRACTICE OF MEDICINE IN THE NEW ENGLAND COLONIES.

Read before the H. C. Wood Medical Society of the University of Pennsylvania, Oct. 21, 1897.

BY FRANCIS R. PACKARD, M.D.
PHILADELPHIA, PA.

I propose to glance in a cursory manner at a few of the many interesting and curious facts concerning medical practice in the early days of the settlement of New England. It is a subject about which not much has been written and of which our knowledge is very scanty, compared with the thoroughness with which we know every other detail of the lives of the colonists. The truth is that our medical forefathers left but little literary material upon which to work in an investigation of their methods or experiences. But few of them devoted themselves to purely professional work, and their lives were too largely occupied with the battle against the difficulties which lay in the way of developing the new country to afford much chance for scientific or literary labor, had any of them the inclination for it.

In the records of the settlements of the New England colonists we find but few instances in which the expedition was accompanied by a regularly appointed physician or surgeon. In March, 1629, one John Pratt was appointed, by the Court of Assistants in London, as surgeon to the Salem Plantation, upon the condition, "that £40 should be allowed him, for his chest £25, and the residue for his own salary during the first year." This is all we know of poor Pratt, except his untimely end, which is recorded by Governor Winthrop in his history of New England. It appears that in 1645 he sailed for Spain in a vessel built and sailed by Thomas Hawkins of Boston, and that when in sight of the Spanish coast they struck a rock, the vessel sank and Pratt perished. Winthrop says of him: "He was above 60 years of age, an experienced surgeon, who had lived in New England many years, and was of the first church at Cambridge in Mr. Hooker's time, and had good practice and wanted nothing. But he had long been discontented because his employment was not so profitable to himself as he desired, and it is like he feared lest he should fall into want in his old age."

In April, 1629, the "Governor and Company of the Massachusetts Bay in New England" issued a general letter addressed to John Endicott, the leader of the settlers at Salem, in which they informed him that they had agreed with Lambert Wilson, chirurgeon, that he should act as surgeon to the settlers, and also to the neighboring Indian tribes, for three years, and he further engaged to give a medical training to one or more of the young men of the colony.

These are the only records of the appointment of surgeons to the settlements that I have been able to find.

Our forefathers seem to have placed much confidence in the medical skill of their spiritual and secular authorities. Cotton Mather was regarded as eminent authority on medical subjects, though with a knowledge of his opinions on the subject of witchcraft, one would have been rather disinclined to trust his judgment.

There is extant a manuscript of prescriptions or formulæ, which were furnished to John Winthrop, Governor of the Colony of Massachusetts Bay, by a Dr. Ed. Stafford of London, to be used in the treatment of various ailments which might afflict the colonists. I have transcribed some of these as illustrative of some of the standard treatments of the day. They were found among the Winthrop Papers and were published in the "Transactions of the Massachusetts Historical Society."

The first is curious, as it brings forth Dr. Stafford's belief in the so-called doctrine of signatures. "For the yellow Jaundise or Jaunders. Boyle a quart of sweet milke, dissolve therein as much bay salt, or salpeter, as shall make it brackish in taste: and putting saffron in a fine linen clout, rubb it into ye Milke, untill ye Milke be very yellow: and give it ye patient to drinke."

It is well for the people of the Southern States, in which yellow fever is prevalent, that the second prescription I quote is not still in use. It is entitled: "My Black powder against ye plague, smallpox, purple and all sorts of feavers, Poysons; either by Way of prevention, or after Infection. In the Moneth of March take Toades, as many as you will, alive; putt them in an Earthen pott, so yt will be halfe full; Cover it with a broad tyle or Iron plate; then overwhelme the pott so yt ye bottom may be uppermost: putt charcoales round about it and over it, and in the open air, not in an house, sett it on fire and lett it burne out and extinguish of itself: When it is cold, take out the toades; and in an Iron morter pound them very well, and searce them, then in a Crucible calcine them againe: pound and searce them againe. The first time they will be a browne powder, the next time black. Of this you may give a dragme in a Vehiculum (or drinke) Inwardly in any infection taken, and let them sweat upon it in their beddes: but lett them not cover their heads; especially in the Smallpox. For prevention half a dragme will suffice: moderate the dose according to ye strength of the partie, for I have sett downe ye greatest that is needfull. There is no danger in it. Lett them neither eat nor drinke during their sweat, except now and then a spoonfull of Warme posset-drink to wash their mouths. keep Warme and close (for a child of 5 years, 10 graynes is enough in infection, for prevention 4 or 5 graynes.) till they be pefectly well; and eate but little; and that according to rules of physicke."

But there is yet more service for his "Black powder."

"The same powder is used playster wise with Vinegar for a gangrene, or bite of ane Venomous beast, taking it likewise Inwardly: It is used likewise for all Cankers, Fistulas & old Ulcers & king's Evill, strewing it upon the sores and keeping them cleane."

The following is his prescription for "Ye Falling sicknesse: Purge first with ye extract of Hellebore (;black hellebore I meane;) and instead of St. John's Wort use pentaphyllon, (or meadow Cinquefoile:) use it as above is said of St. John's Wort, and God willing he shall be perfectly cured in short or longer tyme according as the disease hath taken root."

The list contains a recipe for "A broken bone, or a joynt dislocated, to knit them: Take ye barke of Elme, or Witch hazzle; cutt away the outward, and cutt ye Inward redd barke small, and boyle it in Water till it be thick that it Will rope: pound it very well, and lay of it hott barke and all upon ye Bone or Joynt, and tye it on: or with ye Mussilage of it, and bole Armeniack make a playster and lay it on."

The bole Armeniack of the prescription is an argillaceous earth, possessing astringent properties.

Dr. Stafford concludes with the following:

"*Nota benè:* No man can with a good Conscience take a fee or a reward before ye partie receive benefit apparent: and then he is not to demand anything, but what God shall putt into the heart of the partie to give him. And he is not to refuse anything that shall be given him, for it commes from God. A man is not to neglect that partie, to whom he hath once administered, but to visit him at least once a day, and to medle with no more than he can well attend. In so doing he shall discharge a good Conscience before God & Man. These receipts are all experimented.

ED. STAFFORD, London May 6, 1643."

The colonists welcomed the arrival of ships having surgeons aboard them and their services were eagerly sought for. Winthrop tells us that in the year 1644 "One of the deacons of Boston Church, Jacob Eliott, (a man of very sincere heart, and an humble frame of spirit,) had a daughter of eight years of age, who being playing with other children about a cart, the hinder end thereof fell upon the child's head and drove a piece of the skull before it into the brain, so as the brains came out, and seven surgeons, (some of the country, very experienced men, and others of the ships which rode in the harbour) being called together for advice etc. did all conclude that it was the brains (being about half a spoonful at one time and more at other times,) and that there was no hope of the child's life, except the piece of skull could be drawn out. But one of the ruling elders of the Church an experienced and very skilful surgeon, liked not to take that course but applied only plasters to it, and withal earnest prayers were made by the church to the Lord for it, and in six weeks it pleased God that the piece of skull consumed, and so came forth, and the child recovered perfectly, nor did it lose the senses at any time."

The Puritans, as is well known, had the most intense belief in the efficacy of prayer, as is evinced in the foregoing anecdote and in the following, also taken from Winthrop: "One Bumstead, a member of the church, had a child of about the same age (as the one above mentioned), that fell from a gallery in the meetinghouse about 18 feet high, and broke the arm and shoulder, (and was also committed to the Lord in the prayers of the Church, with earnest desires that the place where his people assembled to his worship might not be defiled with blood,) and it pleased the Lord also, that this child was soon perfectly recovered."

The first appearance of syphilis in the colonies was of such a curious nature that I have taken the chronicler's text verbatim. It is once more John Winthrop who narrates how this most grievous disease came amongst them. It was in the year 1646:

"There fell out also a loathsome disease at Boston, which raised a scandal upon the town and country, though without just cause. One of the town ——, having gone cooper in a ship into ——, at his return his wife was infected with Lues Venerea, which appeared thus; being delivered of a child and nothing then appearing, but the midwife a skilful woman, finding the body sound as any other, after her delivery she had a sore breast, whereupon divers neighbours resorting to her, some of them drew her breast, and others suffered their children to draw her, and others let her child suck them, (no such disease being suspected by any,) by occasion whereof about sixteen persons, men, women, and children, were infected, whereby it came at length to be discovered by such in the town as had skill in physic and surgery, but there was not any in the country who had been practiced in that cure. But (see the good providence of God) at that very season there came by accident a young surgeon out of the West Indies, who had had experience of the right way of the cure of that disease. He took them in hand and through the Lord's blessing recovered them all in a short time. And it was observed that although many did eat and drink and lodge in bed with those who were infected and had sores, etc., yet none took it of them but by copulation or sucking. It was very doubtful how this disease came at first. The magistrates examined the husband and wife, but could find no dishonesty in either, nor any probable occasion how they should take it by any other, (and the husband was found free of it.) So as it was concluded by some, that the woman was infected by the mixture of so many spirits of men and women as drew her breast, (for thence it began). But this is a question to be decided by physicians."

In times when sickness was rife or an epidemic prevailed, days were set aside for fasting and prayer. The earliest fast day held for deliverance from sickness was kept in Massachusetts, July 3, 1644. The records simply state that "there was much sickness in the land," and do not specify for what particular disease the fast was held.

Judge Sewall in his diary records a case in which prayer seems to have been unduly exciting to the sick man. It seems it was customary, when the patient was declared to be in a dying condition, for his neighbors to gather and make long prayers at his bedside. On Sept. 20, 1690, he writes: "Mr. Moody and I went before the others came to neighbour Hurd who lay dying, where also Mr. Allen came in. Nurse Hurd told her husband who was there and what he had to say; whether he desired them to pray with him; He said with some earnestness, Hold your tongue, which was repeated three times to his wives repeated entreaties; once he said Let me alone or Be quiet (whether that made a fourth or was one of the three do not remember) and My Spirits are gon. At last Mr. Moody took him up pretty roundly and told him he might with some labour have given a pertinent answer. When we were ready to come away Mr. Moody bid him put forth a little Breath to ask prayer, and said it was the last time had to speak to him; At last ask'd him, do you desire prayer, shall I pray with you. He answered, Ay for God's sake and thank'd Mr. Moody when had done. His former carriage was very startling and amazing to us. About one at night he died. About 11 o'clock I supposed to hear neighbour Mason at prayer with him just as my wife and I were going to bed."

The Judge dabbled a good deal in medicine, and writes in his famous diary very entertainingly of some of his experiences. He strongly advocated prayer at the bedside of the sufferer, as he quaintly expresses it, to "give him a lift Heavenwards." Possibly some might question the therapeutic benefit of a dying man receiving "a lift Heavenwards."

He tells us of a Mr. Brattle he visited, and who informed the Judge that his visits were not welcome; "he plainly told me that frequent visits were prejudicial to him, it provoked him to speak more than his strength would bear, would have me come seldom."

The mortality among the early colonists of New

England was appalling. They died off like sheep. The settlement of Plymouth had been made Dec. 28, 1620, by 102 settlers, who had landed from the *Mayflower*, and during the following January and February the deaths averaged two and three a day, a very high death rate in such a small community.

Winterbotham says, "the diseases most prevalent in New England were the following; alvine fluxes, Saint Anthony's fire, asthma, atrophy, catarrh, colic; inflammatory, slow, nervous and mixed fevers; pulmonary consumption, quinsy and rheumatism."

It seems probable from contemporary accounts which have descended to us, that many deaths occurred from "galloping consumption." Influenza epidemics swept over the colonies at intervals and were attended by a remarkable fatality. Dysentery was another disease which prevailed in epidemic form throughout New England at various times. Abigail Adams, the wife of President John Adams, has left us in her "Familiar Letters" a most graphic description of the epidemic of dysentery at Braintree, Mass., in the year 1775, in which she lost many relatives and friends.

The scourge which was most dreaded, however, was smallpox. The first medical publication in the colonies was a small pamphlet, entitled "A Brief Rule to Guide the Common People of New England How to Order themselves and theirs in the Smallpox and Measles," by Dr. Thomas Thacher. It was printed in 1677. Dr. Thacher was not only renowned as a physician, but was also the first minister of the famous Old South Church in Boston, and the author of a Hebrew lexicon. His little treatise, he says, was written "not to inform the Learned Physitian that hath much more cause to understand what pertains to this disease than I, but to give some light to those that have not such advantages." He embodies, in a popular form, the current ideas of the day as to the pathology and treatment of the two diseases. He considers them conjointly, because he thinks smallpox is a disease "whose nature and cure the measles follow."

In April, 1721, Lady Mary Wortley Montague having returned to England from Turkey, introduced there the practice of inoculation for smallpox, which she had learned from the Turks. At about this time the Reverend Doctor Cotton Mather of Boston read in the "Philosophical Transactions" of the London Society an account of inoculation, written by Pylarini and Timoni, two Italians. He asked a number of the leading physicians of Boston to try it, but they all treated the proposition with ridicule, except Dr. Zabdiel Boylston, who was an intimate personal friend of Mather, and one of the leading medical men of the town. June 27, 1721, only two months later than the introduction of the practice into England, Dr. Boylston inoculated his only son, a boy of 13, and two negro servants. The attempts proved completely successful, but the practice of inoculation brought such a torrent of abuse upon the Doctor as is almost incredible. His fellow practitioners, animated partly by jealousy, partly through ignorance, united almost to a man in reprobation of the custom. He was assaulted in the streets, his house was attacked by a mob, and a bomb was thrown into the parlor in which his wife was siting. But in spite of all opposition the method of inoculation prevailed and Dr. Boylston's triumph was soon complete. Hutchinson in his "History of Massachusetts" says, "in the year 1721, and first part of 1722, Dr. Boylston inoculated 247 persons, and 39 were inoculated by other persons, in Boston and its vicinity. Of this number only six died and several of these were supposed to have taken the infection before inoculation. In the same period 5759 took the disease the natural way, of whom 844 died, and many of those who recovered were left with broken constitutions and disfigured countenances." What were known as "classes" were formed for the purpose of being inoculated at the same time, or as it was called, "taking the smallpox together." Many doctors established private hospitals for the inoculation of the smallpox. There were two in the immediate neighborhood of Boston, one at Point Shirley, conducted by a Dr. William Barnett, from New Jersey, the other at Castle William, in Boston Harbor, in charge of Dr. Samuel Gelston of Nantucket.

Alice Morse Earle in her amusing little book, "Customs and Fashions in Old New England," quotes an example of the ordinary method of advertisment adopted by those who managed these establishments. It is from the *Connecticut Courant* of Nov. 30, 1767: "Dr. Uriah Rogers, Jr., of Norwalk County of Fairfield takes this method to acquaint the Publick & particularly such as are desirous of taking the Small Pox by way of Inoculation, that having had Considerable Experience in that Branch of Practice and carried on the same the last season with great Success; he has lately erected a convenient Hospital for that purpose just within the Jurisdiction Line of the Province of New York about nine miles distant from N. Y. Harbour, where he intends to carry said Branch of Practice from the first of October next to the first of May next. And that all such as are disposed to favour him with their Custom may depend upon being well provided with all necessary accomdations, Provisions & the best Attendance at the moderate Expence of Four Pounds Lawful Money to Each Patient. That after the first Sett or Class he purposes to give no Occasion for waiting to go in Particular Setts but to admit Parties singly, just as it suits them. As he has another Good House provided near said Hospital, where his family are to live, and where all that come after the first Sett that go into the Hospital are to remain with his Family until they are sufficiently Prepared & Inoculated & Until it is apparent that they have taken the infection."

We are glad to relate that Dr. Boylston's rewards for his services to humanity were commensurate to his deservings. He was invited to London by the eminent Sir Hans Sloane, then physician to the Royal Family, and was honored by an invitation to inoculate the Princess Caroline. He was the first American elected a fellow of the Royal Society, and before his departure from England he published, at the request of that Society, an account of his method of practicing inoculation. He returned to Boston, enjoyed a large practice, and lived to the age of 81 in the full possession of his faculties.

Leukemia.—Von Moraczewski concludes from a study of the metabolism in leukemia that it is an affection caused by diminished nutrition, essentially characterized by an insufficient disassimilation of nitrogen and phosphorus, only half of the phosphorus ingested being eliminated. Any medication that would further the metabolism and elimination would be effective, especially thyroiodin, as he has established in one case.—*Sem. Méd.*, March 26.

THE FREQUENCY OF APOPLEXY AMONG THE HIGHER CLASSES WITH SUGGESTIONS FOR ITS PREVENTION AND ESCAPE FROM FATALITY.

Presented to the Section on State Medicine at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY ELMER LEE, A.M., M.D., PH.B.

VICE-PRESIDENT AMERICAN ACADEMY OF MEDICINE; CHAIRMAN SECTION ON STATE MEDICINE AMERICAN MEDICAL ASSOCIATION; MEMBER COMMITTEE ON REVISION OF THE UNITED STATES PHARMACOPEA, 1890.

NEW YORK, N. Y.

It is rare that an animal dies of apoplexy, but man's days are frequently ended by this disease, coming upon him generally later than the age of 50. The contrast between the simple life of the animal and the complex one of the man is in favor of the former, so far as it relates to health. At the beginning, the young animal and the child are on the same natural footing, both are natures sweet and innocent children. Little by little the child grows away from dependence upon natural methods for its guide, substituting the artificial as life advances and ever becomes more complex. But the animal pursues an even tenor of regularity and simplicity, avoids the excesses and escapes the sad consequences of sickness, pain and premature death.

The beginning of disease is at that moment when the laws of health are first violated, and starts with infancy and childhood in the majority of cases. The great love of the parent for the offspring gradually yields to the desires of the young even though inconsistent with reason, and the gratification of them detrimental to its best present and future welfare. In the young vitality is vigorous, and in spite of bad care and over-indulgence from the well-meaning parents, it carries a large proportion of the children to adult age and beyond. The early mistake in the training of the child is the principal factor that develops into the disaster of the later years. When the child comes into the world it is ignorant of the requirements necessary for life and health, and is at the mercy of conditions beyond its power to change with reference to those who shall conduct the young life safely, or to its destruction. The laws relating to preservation of health being so little comprehended and so much neglected, affords just the state of things suited to start the beginner in life into the wrong path. The early impressions, very hard to correct later in life, added to misapprehension and error in the process of growth lay the certain foundations for disease and premature fatality.

Each nationality has its peculiar domestic customs which are transmitted to the offspring, and while some of these habits of life are innocent, many of them are directly fatal in due course. The German teaches the infant to cultivate a taste for mild liquor of the nature of wine and beer. The youth is encouraged to drink the health of the fatherland, while the adult saturates every cell and tissue in the body with a 4 per cent. solution of alcohol in malt, with supposed security and a conscious feeling of superiority to his neighbor, who tipples with high wine and whisky. The drinker of the weaker beverage makes up in quantity what his favorite drink lacks in strength, as compared with the stronger poison of French or English friends. The result in all cases is the same, provided enough is taken and for sufficient time to destroy vital processes.

The American is the jolly associate and imitator of the convivial foreigner, freely indulging in his virtues and vices, and equal to him in the consumption of potations both mild and strong. Familiarity with the titles and literature pertaining to alcoholic poisons, otherwise known in polite circles as "cocktails," "gin-slings," "brandy-smashes," "Tom and Jerry," and "nightcaps," together with a very long list of fantastic names supposed to represent some peculiar virtue, forsooth, that which is good for man, is early acquired by the youth who are to constitute later the apoplectic surprises which are noted in the daily morning paper, thereby forming a morsel for comment even by those who are in the same danger but heed it not. In natural health the ideal desire is to prolong life and to walk in pleasant paths. Every one hopes to escape pain and sickness, and of the many who so desire, a few only succeed. Nature is most gentle and tender, but at the same time absolutely just, and what is suffered by man is through either folly or ignorance in his blinded eagerness to attain the satisfaction of a bauble.

So long as the grape grows and the fermented juice is brought habitually in contact with the delicate cells of a human body, and while human food is mixed with acidulated alcohol in the form of frothing beer, that man who loves the solace of these potations, and who persists in the mistake that he is stimulated and thereby refreshed, is sure to fall a fatal victim to an implacable fate which patiently waits and finally seals his doom. There are many who belong to this unfortunate class that escape apoplexy to fall earlier in life from maladies with different names, but hastened and effectual in their fatality from even that abuse of the alcoholic influence disguised under the fair apology of moderation. With an error of life of such wide and extended daily use as that of habitual drinking of liquor is there anything strange in frequent fatalities due to apoplexy?

The number of fatalities from apoplexy would be even far greater if it were not that death claims many victims of wrong living ere the course of mistakes run by weak and deluded humanity reach the apoplectic goal. This is a frequent disease among the higher classes, for it is in this class that those excesses which contribute to produce apoplexy prevail to such a degree as to keep the press supplied with obituaries of those accounted distinguished and possessed of lovable characters.

Apoplexy refers to an accident to an artery in the brain resulting in intracranial hemorrhage and pressure, causing sudden loss or diminution of sensation and power of voluntary motion. The artery ruptures through inherent weakness of the wall from previous disease. The accident is likely to be fatal, but there may be one or several strokes or ruptures at varying intervals before the patient perishes. The rupture of an intracranial artery, if near a vital nerve center, rapidly brings the life which has lived in disobedience to nature to an abrupt termination, but if the artery ruptured is somewhat remote, protracted paralysis, more or less complete, is the result.

In the light of the experiences of yesterday, it would be possible to pass the earthly days without apoplexy save in most rare instances, were the wisdom heeded which is gained by the knowledge that not one who has lived in violation to natural law has escaped a penalty exactly in proportion to his transgression. So intense is the demand for artificial stimulation when

once the natural appetite is perverted by thoughtless and innocent indulgences, later by fierce and uncontrolled intemperance in eating, drinking and sinning, in desecration of the holy temple of health, that life without these health-destroying agents seems to such characters a failure. The use of artificial and false doctrines poisons in gradual degree the whole race. The American teaches the child to prepare for fatty degeneration and its consequent choice collections of bodily afflictions, by setting examples that if followed, lead to destruction of health and loss of life.

The coffee pot is high ruler of the table and the digestion of the American family and dyspepsia prevails to the consternation of all classes and of nearly every age. The sauces and vinegars, the relishes and dressings, the salads and sweets, innocent in themselves but habitually used and abused, poison the nourishment of the body, enfeeble the circulation and weaken the vital resistance. The source of weakness as well as that of strength is regulated by the stomach, and in this organ arise the initial causes that tend to sickness and death of the body. As has been truly stated by Dr. Page of Boston, "dyspepsia is incipient consumption," thus it may be also clearly proven that from the same source arises that condition which finally ends life in the apoplectic stroke.

Too much to eat is a misfortune which has for its penalty, lack of digestion and failure to relish with a keen satisfaction the whole blessing that food is intended to confer. While to the multitude, who have insufficient food, the hardship would not be a misfortune so great if the knowledge of food and its best use was better understood and practiced. One class has too much and the other too little, and to both come disease, for in each case the natural laws of health are violated in the selection of the articles of diet, and in the preparation which civilized cookery has visited upon the members of the human family.

The almost universal custom of three meals a day finds favor among physicians and the laity alike, and even in the treatment of sickness when the system is embarrassed and struggling to overcome the obstacles forced into the unwilling human machine against the prolonged remonstrances of the digestive organs. Through excessive feeding and insufficient elimination the load ever increases, and when nature is outraged to the limit of forebearance, mild protest is succeeded by partial or complete failure to proceed further. Strange as it may be, and frequently by advice of the professional mind, the very cause of the sickness is kept up by an amount of food and of an improper character, which, while it would not amount to a surfeit to the well, does further interfere with a rapid restoration to health, and is not infrequently a direct factor in stretching a slight matter into a long sickness with recurring relapses and death.

The hard out-of-door laborer, swinging his pick and working with the shovel, is entitled to three meals a day, for they are earned and likewise needed. But this class does not constitute the apoplectic victims. This advantage, if balanced with temperance among the wage earners, would augment their happiness and add years to life and minimize their sorrows. Correct information regarding the essentials of eating and drinking for the sustenance and comfort of health has and ever will stand as the first requisite toward the prevention of sickness and apoplexy, and while it is either misunderstood or neglected, life will be robbed of its sweets to the individual, and society of lovable and useful characters. Two moderate meals of natural and healthful food is the limit that constitutes safety to the higher classes. A morning and evening meal, with bread and fruit for the midday refreshment, with water instead of artificial drinks, would spare the waste of good friends and distinguished public men, a class generally at the mercy of fashion in eating, and to the quickening cup, with injury in the drop and fatality in excess. That person who has any symptom related to the digestive organs needs advice of the highest order and if the case progresses toward a worse condition it would be far better to seek counsel from a competent medical adviser, and never from the plausable and cunningly-worded falsehoods for whom newspaper and almanac cures are invented.

Careful experiments with different materials and weights used as clothing for the human body have established that the modern dress of heavy flannel beneath the woolens outside, with additional accessories to dress, even in cold weather, is in excess of the requirements. Then how much more unnatural is it to wear more than is needed in mild and warm climates, and such as that which includes New York and Philadelphia? By dressing the body with too much clothing, dangers to health are increased and recovery from chronic diseases retarded. As a plant would soon die without its trunk and branches freely exposed to air and light, so the human body dies gradually, though one of the causes is often overlooked or attributed to other explanations. The best light-weight underwear procurable in either silk, cotton or linen mesh for the youth and the adult, in health or sickness, is indicated both in winter and summer. Flannels are no longer recommended for scientific reasons.

Then with a correct food supply and the use of pure water for the drink, freely taken all through life, together with right use of covering for the body, which will admit of enough ventilation (seldom found among my patients and the sick generally), with sound medical counsel, places it within the reach of the average individual to avoid a premature fatality. Open air exercise is indispensable to the preservation of health and to the prevention of apoplexy. The causes of sickness and disease are the causes of apoplexy and prevention and escape from fatality means that the individual can not violate natural laws of organization and vitality, with coarse jeer at health requirements. To the hourly and daily and non-compromising demands to practice wisdom, there is no appeal, and the penalty for violations of nature's code for man's use, is paid with a forfeit of his life.

10 West Forty-ninth Street.

TYPHOID FEVER.

BY F. M. GREENE, M.D.
LEXINGTON, KY.

Numerous articles have been published in the various journals, on the antiseptic and eliminative treatment of typhoid fever, and in none, as far as observed, has the action of the remedies been discussed. The question has been asked: How do the remedies recommended in the Woodbridge method bring about a cure in this disease? We shall endeavor in a short article, to explain their action as far as known. Abundant evidence has already been produced to show that by early use of these remedies, the disease may be aborted, and many of its dangerous complications and

sequelæ prevented. The opponents of the method account for our success by charging upon us errors in diagnosis: claiming that we have been treating other diseases for typhoid fever. While we acknowledge the difficulty of diagnosing the disease in its earlier stages, and of differentiating it from malarial fever, and other affections which it sometimes closely simulates, we claim an equal right to decide the question from experience, aided by the most improved methods of diagnosis.

During the past summer and autumn, we treated a number of cases in which both the Widal serum and Ehrlich's diazo-reaction tests were used. In two of the cases, the serum test showed positive reaction and Ehrlich's test failed to produce the garnet colored ring, or pink foam. In one case the Ehrlich test gave, apparently, the characteristic ring, and the serum test, after several examinations, failed to produce immobilization, or clumping of the bacilli. The clinical symptoms in this case, during the second week, were those of typhoid fever. The temperature ranged from 104.5 in the evening, to 102 in the early morning. The patient was now put on large doses of quinin and promptly recovered. In the Widal test, we have immobilization, and distinct clumping of the typhoid bacilli, as early as the fifth day of the disease; giving an opportunity to confirm the diagnosis, and of aborting it, by commencing the treatment early. We here use the word abort in the usual sense of cutting short or stopping a disease in its ordinary course.

The subject of the therapeutic action of remedies in disease is one of great interest and sometimes very difficult of explanation. Our knowledge of their effects upon the human organism in health and disease, especially their power, when administered internally, to destroy pathogenic germs, or to neutralize toxins resulting from their presence in the blood, can be determined only by experiment. One of the triumphs of modern medicine is the discovery of the microbic origin of diseases, and our efforts henceforth must be directed to the destruction of disease-producing germs, or failing in this, to counteract or neutralize the poisonous materials resulting from their activity. There is an analogy between the action of these medicines in typhoid and that of quinin in malarial fever.

Malarial fever is caused by the presence in the blood of a hematozoon (plasmodium malariæ of Laveran), which, having invaded the system, multiplies enormously and ultimately destroys the red corpuscles. There can be scarcely a doubt that this particular micro-organism is the cause of malarial fever. While presumptive evidence is strongly in its favor, until its life history outside the body has been fully traced and malarial fever produced by its inoculation, positive proof must be wanting. We have learned that the administration of quinin causes a disappearance of these intra-corpuscular parasites from the blood, and very soon the paroxysms peculiar to this fever cease, and health is restored. There may be difficulty in understanding how mercury and iodid of potassium cure syphilis, and yet physicians do not hesitate to resort to them in some stage of the disease. Typhoid fever is now classed among the infectious maladies and it is believed that its cause enters the system through food or water and selects a certain part of the alimentary canal for the place of its development. We are familiar with the fact, though unable to explain why the bacilli select this portion of the canal for their nidus, no more than we can explain why the diphtheria bacilli first commence operations on the epithelial layer of the mucous membrane lining the fauces or anterior and posterior nasal cavities.

Klebs, Eberth and Koch were the first to accurately describe the micro-organisms of typhoid fever. They are represented as small bacilli with rounded ends and are anaerobic in character. They are found most abundantly in the intestinal lesions, mesenteric glands and spleen. That they are not found more frequently in the urine and the alvine discharges is doubtless owing to the imperfection of our technic in isolating them. They have been recently found in the meninges of the brain, in a case which ended fatally and in which brain symptoms were prominent early in the attack. Gaffky found the bacilli only in about half of the cases examined by him and observed that they were not scattered everywhere, but appeared usually in foci. These facts are important because it has been claimed by some, that our efforts to cure are aimed solely at rendering the alimentary canal aseptic; whereas, we claim that the remedies act first locally, by destroying the bacilli in the lumen of the bowel, and intravascularly, by inhibiting their growth in the blood and tissues of the body. We may learn more of the nature of this disease by studying its minute pathology than by any other means. Green says, "the most characteristic changes in typhoid fever take place in the solitary glands and Peyer's patches. In most cases, the process is limited to those in the ileum and cecum, and those glands are always most affected which are situated nearest the ileocecal valve. The first changes observed are hyperemia and cell infiltration of the glands; many of the cells increase considerably in size and multinucleated forms are numerous. Both Peyer's patches and the solitary glands thus become enlarged and prominent and stand up as sharply circumscribed areas, above the surface of the intestine. The surrounding mucous membrane is also exceedingly vascular and is the seat of acute general catarrh, which is most pronounced before the glands begin to swell.

"The cellular infiltration, in many parts, rapidly extends beyond the confines of the glands, into the immediately surrounding and subjacent tissues, and in some cases even into the muscular and serous coats." This stage ends the first half of the second week of the disease; it is therefore usually after this that ulceration and necrosis begin to appear and the symptoms of delirium, subsultus tendinum and failure of the secretions, indicating profound toxemia, are present.

The primary action of the bacilli is upon the mucous membrane lining the intestine in the vicinity of these glands and it is here, in the lumen of the bowel, that we may accomplish much by the proper use of antiseptics and eliminatives. When the remedies are not commenced until some time during the second week, we may still modify the disease and prevent serious complications, which now begin to appear. The complete disappearance of fever after ten days when the treatment has been commenced early, is proof sufficient that we have not only destroyed the bacilli in a great measure, but neutralized the toxins which produce such disastrous results upon the brain and nervous centers and ultimately destroy the blood itself. It is now the opinion of the profession generally that, in all infectious diseases, it is not the mere presence of the micro-organisms in the blood, but the formation of toxins, which produce such grave results.

An attack of the disease is often insidious, and it has usually progressed to the second stage before we are called. Diarrhea is so frequent an accompaniment as to be regarded as pathognomonic. It should be looked upon as an effort of nature to get rid of the disease, and it is rare that it does not appear in some of its stages. We believe that constipation, when it exists, is an indication of the mildness of the attack, and many such cases recover without medicine, by proper regulation of the diet and hygienic measures.

Proper digestion of food can not go on either in the stomach or intestines, and a fermentative process is set up by the presence of typhoid bacilli and other microorganisms which are present. Gases are evolved and meteorism is often a distressing symptom, increasing the danger of perforation when ulceration and necrosis are present. Physicians were formerly opposed to the use of purgatives, from the idea that they produced exhaustion, and that it was necessary to husband the strength of a patient in this disease. Hypercatharsis, from the use of even mild aperients, was regarded as a warning to desist from their use, and opiates were often given to restrain diarrhea, thus favoring a condition which we now regard as most unfortunate, namely, the retention of vitiated secretions, which should be removed at the earliest possible moment. At first we were alarmed at the frequency of the actions, which sometimes amounted to five or six during twenty-four hours, but when we found that after three or four days the diarrhea lessened and the temperature began to fall, we learned to appreciate the value of this method. The loss from diarrhea was more than compensated by maintenance of the secretions and the early return of the appetite. The calomel and podophyllum given in small doses keep up a flow of bile, which is itself antiseptic and promotes the peristaltic action of the bowels. The essential oils in this prescription are eliminated through the skin and kidneys, and when given with large quantities of sterilized water, doubtless favor the escape of poisons through these channels. We believe that the treatment is very much enhanced by large and frequent draughts of cool water given during the stage of diarrhea. Thus would we advocate the Brand treatment internally, instead of externally, producing equally if not more rapid reduction of temperature.

Lastly, we consider the use of the carbonate of guaiacol in this disease, and believe that it acts as a germicide both in the lumen of the bowel and the blood and tissues of the body. It belongs to the phenol group, which occupy an important place both as germ destroyers and germ poison neutralizers. We quote from Seifert of Berlin, who has shown that during absorption "the phenols, which are not found present in the blood in their free state, combine with the albuminous substances, and especially with the most readily reactive of them, the toxic albumins which are the products of microbic life. These compounds of the tox-albumins with the phenols are probably non-toxic. They rapidly undergo oxidation in the system and appear in the urine as etherial sulphates. To this group belong cresol, naphthol, thymol, creosote, guaiacol and others. As a class they are too irritant and caustic to be given alone. The guaiacol, when combined with carbonic acid, has proven to be non-irritant and decidedly antiseptic. During absorption it is decomposed into its constituents, pure guaiacol and creosote. The decomposition takes place so slowly and the quantity of each eliminated so minute that it loses its irritative effect and is germicidal." In experiments upon dogs and other animals Hoelscher found that it passed the gauntlet of the gastric juice unaltered, and eliminated its effective elements in the intestine where they are most needed. Whether or not the theory be true, we are most interested in the wonderful results which follow their administration. In all cases the gastro-intestinal canal is speedily improved, the tongue becomes moist, appetite returns, the thin stools become consistent and more natural, giving off the odor of guaiacol. The odor of creosote in the urine is evidence that it enters the circulation and is eliminated through the kidneys. We have frequently observed a dark color of the urine, as from the administration of the remedy in the ordinary way.

As regards the mode of administration of the Woodbridge remedies, we do not think it essential to give them as frequently as recommended by the author. We have found them equally effective given in larger doses and at longer intervals. The somewhat pungent and disagreeable taste of the tablets may be obviated by enclosing them in capsules and giving them every half hour or hour, being careful to administer a given quantity in twenty-four hours. It is important that the patient be encouraged to drink large draughts of sterilized water. There are doubtless other intestinal antiseptics which have proven of great value in this disease. The sulpho-carbolate of zinc has some reputation, as has also betanaphthol bismuth. In the treatment of the disease in children we have found the latter to be very effective as an intestinal disinfectant, but we have not been able to abort the disease with it.

It is remarkable that until Woodbridge called attention several years ago to the antiseptic treatment, comparatively little was known or said of intestinal antisepsis. Since publishing his cases and making the announcement that he could abort the disease numerous articles have appeared advocating the use of certain remedies for this purpose. Many have advocated a treatment which they have called their own, selecting certain remedies taken from the Woodbridge formula. One selects thymol, another guaiacol, others calomel and eucalyptol, rejecting the formula as a whole.

In regard to the method we add the following concerning patients in whom the disease has been aborted and who have apparently entered upon a favorable convalescence:

After the temperature has been reduced to normal the diet and exercise should be carefully looked after for some time, and the carbonate of guaiacol continued for at least two weeks, given at longer intervals. This is especially true of cases to which we have been called at the close of the second, or beginning of the third week. There are no means by which we can positively ascertain the condition of the bowels as to ulceration or necrosis at this time. It may exist and silently go on even after convalescence has been established, and errors in diet or exercise may be the cause of relapse even when we have supposed the patient to be out of danger. The history of the following case will demonstrate the importance of these measures.

October 9 I was called in consultation to Denver Wilson, who resided two miles in the country. So far as could be ascertained, the patient had entered upon the third week of the attack. It was regarded as a typical case, the Widal test having shown positive reaction. The patient was removed in an ambulance to the Protestant Infirmary, and immediately put upon

the Woodbridge treatment. On the second day of the treatment there was an alarming hemorrhage from the bowels. Notwithstanding this, on the tenth day of treatment the temperature reached normal, and eight days afterward the patient returned home. All medicine was withdrawn and he was allowed to exercise and indulge his appetite *ad libitum*. Ten days afterward his physician was recalled and the soft capsules were resumed. Five days later we saw him again in consultation, and found him with his knees drawn up, abdomen greatly distended and suffering great pain. The patient expired the day following, doubtless from perforation, and an autopsy could not be obtained. Here was a case in which the patient was allowed to leave the hospital too soon and lost his life from imprudence. We think it fair to report all cases, successful or unsuccessful, and we ascribe failure in this case to improper management. We should therefore be exceedingly careful of the diet, even in apparently mild attacks of this disease, for ulceration may already exist when we commence treatment.

In recapitulation we recommend that the treatment be commenced as early as the diagnosis can be made, and persistently carried out until the temperature becomes normal. A careful supervision of both diet and exercise is important to insure our patient against relapse. We have observed under it diminished mortality. It is a treatment pleasant to physician, attendant and patient. It produces early disinfection of the intestine at the seat of the disease, and prevents serious complications. Baths are unnecessary except so far as surface bathing may contribute to comfort and cleanliness. Antipyretics and opiates are dispensed with. There is a quick return of appetite and rapid convalescence.

26 North Mill Street.

THE EFFECT OF X-RAYS IN OPHTHALMOLOGY.

Presented at the Fourth Annual Meeting of the American Academy of Railway Surgeons, at Chicago, Ill., Oct. 6-8, 1897.

BY A. G. THOMSON, M.D.

ASSISTANT OCULIST, PENNSYLVANIA RAILROAD.

PHILADELPHIA, PA.

In December, 1895, Professor Röntgen gave to the world his great discovery that an invisible ray, now known as the X-ray, produced by sending a current of electricity through a vacuum tube, had the power of penetrating solid and opaque materials and leaving its impress on a sensitive plate. Aside from its great scientific value, this event marks an epoch in the history of medicine comparable to such discoveries as anesthesia and of antisepsis. Although there are experiments being made throughout the world and apparatus being perfected in every way, the new force, so far as its scientific or practical value is concerned, may be considered in its infancy and, as in the case of the discovery of ether and antisepsis, it has so far given its greatest aid to surgery, yet I am sure it will only be a question of time when, as we gain further knowledge of its power and effect further improvement in the apparatus used, we shall see that it will give equally valuable aid in medicine in determining the diagnosis of obscure pathologic conditions. The practical utility of this wonderful force was first demonstrated in surgery. Experiments were concurrently being made in all branches of medicine, and ophthalmologists especially watched the early developments with great interest.

As nobody knew the extent of the new, wonderful force, as with all unknown things, there was a vast field for speculation. Many of the enthusiasts claimed, and the claim was taken up by the newspapers of the country, that the new discovery would confer upon suffering humanity one of the greatest boons conceivable; it would give to the thousands of inmates in blind asylums vision to their sightless eyes. On the other hand, from a diagnostic point of view, for which we had hoped so much, we experienced immediate disappointment. All experiments showed that owing to the unfortunate position of the eyeball, surrounded by the bony walls of the skull, which were at that time thought impenetrable to the rays, the value of the X-ray in determining the presence or in locating foreign bodies in the eye, was practically negative. As regards the hope of producing vision in the blind, these experiments, so far, have shown that for any practical benefits the X-ray is useless. Dr. Brandt[1] stated, at an early date, that by removing the lens, the retina becomes sensitive to the X-rays. This was immediately contradicted by Bullot,[2] who showed that the lens was also transparent as other neighboring tissues of the eye, the difference being due to their densities.

Experiments made by Dr. Hansell and Dr. Max Stern,[3] at the Philadelphia Polyclinic, on patients with defective vision, as leucoma of the cornea, capsular and lenticular cataract, central scotoma, due to a large patch of central retinal choroiditis and atrophy of the optic nerve, showed that patients were unable to see any more clearly through the fluoroscope than before the production of the rays. This is confirmed by the report by Dr. Wilkerson of the California School of the Blind. He selected six patients for testing, one with destruction of the anterior portion of the eye from an old traumatism, one with complicated congenital cataract, one with partial phthisis bulbi from ophthalmia neonatorum and three with optic nerve atrophy. In none of these cases did the rays assist the vision in the slightest degree.

Boch[4] suggests that persons blind from the loss of transparency of the media might be able to read letters painted on a card, varnished and dusted with a powdered metal, if these were subjected to the action of the X-rays. This is impracticable unless a fluoroscope or some other fluorescing screens, by which the shadows are rendered visible, be placed back of the opaque lens or cornea. Otherwise the source of illumination is no more available than before. All these experiments, I think, show conclusively that the X-ray, as it is known today, will be of no practical value to the blind; and this would seem also theoretically correct, as we know our retinas are only able to perceive a very small portion of the spectrum, namely, (1/20) that portion where the vibrations in the ether extend from four hundred million millions to eight hundred million millions of light. Vibrations of lesser frequency, although not seen, are demonstrated by certain instruments of precision, while vibrations above this number are known as the ultra-violet rays, invisible to the eye but demonstrated by a photographic plate. Now, as the rays are emitted from the tube at a very high rale of vibration, they may be conceived as analogous to the ultra-violet rays which are not

[1] Revue général des Sciences de Paris, No. 21, tome VII, p. 897, Nov. 15, 1896.
[2] Revue d'Ophthalmologie, February, 1897.
[3] Polyclinic, Philadelphia, 1897.
[4] Minor abelin, February, 1897.

perceived by our retinas, and no matter how much they are capable of penetrating obstacles to vision, they could not make the blind see when they are invisible to the normal retina.

As time progresses and as one series of experiments after another confirm the want of value of the ray in helping the blind, we are agreeably surprised to see the advances made in the other direction, from a diagnostic standpoint, which at first thought appeared so discouraging.

Among the most serious complications in the practice of ophthalmology and one that always gives the surgeon the greatest anxiety, is the severe traumatism of the eyeball produced by a foreign agent, causing the coats of the eye to be penetrated, and where the presence or absence of a foreign body in the eye is not known. The traumatism may be great enough to destroy the eyeball for all practical purposes of vision, but the anxiety of the surgeon does not end here, for if a foreign body remains within the eye there is always the danger of the dreaded sequelæ of sympathetic ophthalmia.

In the majority of cases of this kind, we are able to satisfy our minds as to the presence or absence of a foreign body by the history of the case, subjective symptoms and theoretic considerations leading us to a positive conclusion; but there are many times when owing to the obscure history, lesions of transparency and great destruction of the eyeball, our previously known methods of diagnosis are not available. That a positive means of determining the presence or absence of a foreign body would be of the greatest benefit in such cases is unquestionable, and I thoroughly believe we have attained the ability of not only determining the presence of the body, but exactly locating it in the eye by means of the X-rays. This does not pertain to particles smaller than the one thirty-second of an inch. The experiments at first were discouraging, and this was most probably due to the incomplete apparatus. Dariex[5] conceived that the low degree of permeability of the eye by the X-rays would undoubtedly be ineffectual in producing a radiograph. By others who worked with tubes of low penetrating power it was found that the eye, surrounded as it was by the bony walls of the skull, would be an insurmountable obstacle to the production of a radiograph. Van Duyse[6] stated that the anterior portion may be radiographed and suggests the procedure of injecting a salt solution under Tenon's capsule to make the eye protrude. Lewkowitz[7] showed that he was able to make a radiograph of the lids and summit of the cornea and to determine, by an elaborate method of figuring, the position of a gilt spangle placed in the conjunctival sac.

Harnisch[8] says, as the eyeball is almost entirely surrounded by bone, which is practically impenetrable to the rays, we could only hope to discover a foreign body as far back as the ciliary region or, in particularly prominent eyes, a trifle further.

The first cases reported that were of any practical diagnostic value were by Williams[9] and Clarke.[10] Both these gentlemen, by their results, show that the ray will penetrate the bones of the skull and, if a foreign body is in the eye, it will throw a shadow on the plate dense enough to be seen. Williams placed his patient on a table, with the cheek of the injured side resting on the sensitive plate, and allowed the rays to pass through the nasal bones and through the external wall of the orbit; while Clarke inserted a sensitized film into the nose and placed the tube to the outside of the temple. The reports of this case were followed during the next fall and winter by those of Hansell, De Schweinitz and Oram Ring,[11] assisted by Max J. Stern, who bandaged the plate to the side of the temple. Friedenburg[12] allowed the rays to be passed from behind the head and to strike a small sensitized plate which was cut to fit into the margins of the orbit. In all these cases the foreign body was successfully removed from the eye. These cases are exceedingly interesting, as they show a decided step in advance. They not only demonstrate that the bones of the skull can be penetrated by the ray, but the whole extent of the eyeball can be radiographed, although they all fail in giving us an accurate means of locating the position of the foreign body.

The method of not only showing the presence of a foreign body, but at the same time definitely localizing its position in the eyeball, was shown by the case recorded by Dr. Oliver,[13] assisted by Dr. Leonard, and by Dr. William Thomson,[14] assisted by Dr. William Sweet of Philadelphia. Dr. Oliver's plan is opposed to that brought forward by Exner,[15] in the fact that the base line for triangulation is made anterior to the cranial shadow, and the exposures are repeated sufficiently often at fixed distances and set situations so as to give a multiple series of relational sides and angles from which the exact position of a foreign body can be accurately determined. This is a very good method and has been successful in several cases, by Dr. Oliver, although not as clear and practical for the surgeon as Dr. Sweet's method.

As I have had the advantage of personally studying the case reported by Dr. William Thomson, from entrance to leaving the hospital, and also of using the method devised by Dr. Sweet in localizing the foreign body in cases of my own up to this time I think that it is the most successful method known to insure the required degree of accuracy. The details of the case can be seen in the report of the proceedings of the American Ophthalmological Society, but it is sufficient to say here that the patient was struck in the eye by a piece of steel, some eight months before presenting himself to the hospital with an exceedingly painful eyeball. The wound of entrance was plainly visible to the outside of the cornea, and an ophthalmoscopic examination showed a dense band of lymph extending from the wound of entrance to the retina, slightly external to the disc. The important diagnostic point to determine in this case was whether the steel was present in the eyeball or had penetrated and lodged in the orbit, in a benign position.

The case was radiographed by a series of pictures, each one of which showed the exact position of the foreign body. Dr. William Thomson operated, making an incision in the sclerotic and inserting a magnet, but without any result. However, having great confidence in the method, he picked up the band of cicatricial lymph with a strabismus hook, following it to its final insertion, the retina, excised it and, to his

5 Aunal d'Oculistique, t. 115, p. 218.
6 Archive Ophth., Tes., 1896.
7 Lancet, 1896, II, p. 452, and Centralbl. f. Prakt. Augenheilk., January, 1897.
8 Annal. Oph. and Otol., 1896.
9 Trans. American Ophth. Society, 1896.
10 Ibid.
11 Am. Oph. Transactions, 1897.
12 N. Y. Med. Rec., 1896, p. 694.
13 Am. Oph. Transactions, 1897.
14 Trans. American Oph. Society, 1897.
15 Deutsche Medicinische Wochenschrift, Jan. 7, 1897.

great pleasure, found the foreign body in it at the exact position as demonstrated by the radiograph. The magnet was not successful, as the steel would not attach itself owing to its partial covering of lymph.

The other point illustrated by this case is that it showed accurately the foreign body, inside the eye instead of the orbit. I had an opportunity of seeing a case a short time ago where the eye was enucleated for a supposed foreign body. After enucleation a piece of steel was found to be lodged in the orbit, having completely penetrated the eye. An X-ray picture would undoubtedly have demonstrated this and saved the patient a serious operation and allowed him to retain the eyeball without danger. The case of Dr. Thomson not only shows the X-ray as an important means of diagnosis in these cases but also as a great help to the operator in removing the foreign body after its exact localization.

Another case which has come under my care recently, although too early to state positive results, will help to show the advantage of the X-ray in diagnosis, in a negative way, by excluding the presence of a foreign body. A man some seven weeks ago was struck in the left eye by a small piece of flying steel from a rivet. He immediately went to a hospital in New York, and was told by the surgeon that he thought the steel to be in eye, but preferred treating him conservatively for a few days. After a treatment of a week, as a traumatic cataract was probably forming, preventing observation of the interior of the eye, and symptoms increasing in severity he advised the removal of the ball. The man declined and consulted another surgeon with the same result. He presented himself before me with the following appearance: The eye slightly red, cornea clear, linear scar three millimeters, in the upper and inner periphery of the cornea, also wound of the iris immediately back of the wound of the cornea, this having the appearance of being dragged in as if it had been punctured, and a small synechia of the pupillary margin, dense, traumatic cataract, ball painful, fields good. I had the eye radiographed and six plates taken on the first day. These showed no signs of foreign body, but owing to the great heat of the weather, the developing was unsatisfactory. Thinking heat might have affected the plates, another trial was made the next day, and this time eight plates were taken. These were all good radiographs but no sign of the foreign body was visible. I therefore decided to be governed by the radiograph in the treatment of the case, and thereafter regarded it as punctured wound without the presence of a foreign body. As the lens became somewhat swollen I did a cataract extraction combined with an iridectomy, incising the iris at the point of injury, thinking I might find the foreign body at the lens or iris. This also proved fruitless. The case recovered from the operation and is doing exceedingly well, and I firmly believe, although too early to state positively that as there is no foreign body present in the eye, the man will retain not only his eye, but his vision.

Ophthalmology is undoubtedly indebted to the X-ray, as it has added another accurate method in diagnosis of the injuries complicated by presence of foreign bodies.

As regards the deleterious effects of the X-ray, they are small in comparison to the great benefits derived. I have seen several instances of the hair falling out and slight dermatitis, but this is always due to the fact of the vacuum running down and the rays not penetrating, and to long exposures. I have never seen any serious damage to the eye.

[Dr. Thomson then showed the apparatus and demonstrated Dr. Sweet's method of localizing from the charts made in the case of Dr. William Thomson. The following description being given by Dr. Thomson from "Transactions of the Ophthalmological Society" for 1897:]

For this purpose an indicating apparatus is used, carrying two steel rods, each with a rounded end. The indicators may be supported by a head band, and the plate held to the side of the head by an ordinary bandage. The balls of the indicator are at a known distance apart, one pointing to the center of the cornea, and at a known distance from the eyeball, while the other is parallel to the first, toward the external canthus. The visual line is parallel to the indicators and to the plate. The balls should also be perpendicular to the plate.

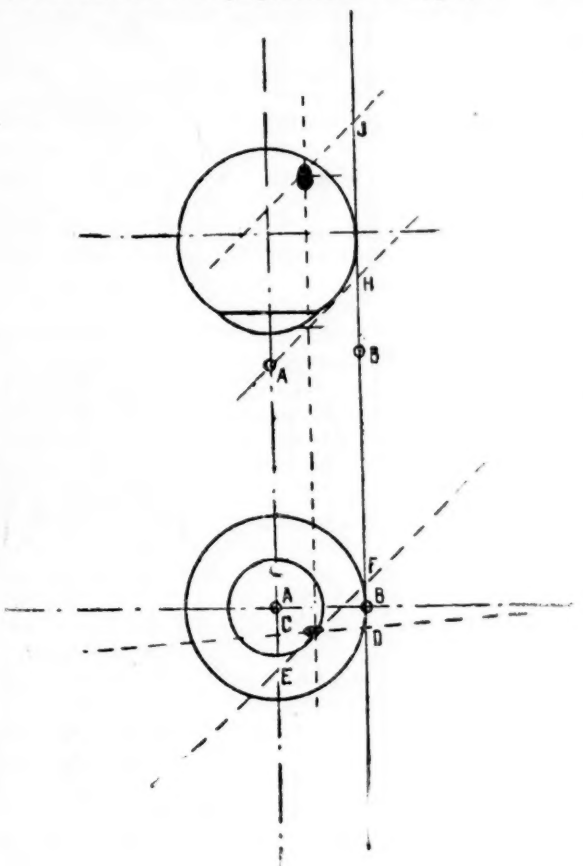


FIG. 1.—Diagrammatic circles of the eye upon which the measurements are made to show location of foreign body. Upper circle horizontal section; lower circle vertical section of eyeball.

In making the negatives the tube is in front, about thirteen inches from the plate, and at an angle of from 15 to 40 degrees, with a vertical plane passing through the apex of each cornea. The plate is at the opposite side of the head, and the rays pass through the eyeball and the external orbital wall before reaching the sensitive film. Two exposures are made, one with the tube in a horizontal plane, or nearly so, with the two indicators, and the second at any distance below. The angle of the tube below the horizontal is unimportant, so long as the two exposures give different relations of the indicators on the negatives.

In determining the position of the foreign body in the eye, two circles, twenty-four millimeters in diameter, equivalent to the size of the globe, are drawn upon paper. One circle represents a horizontal section of the eyeball, and the other a vertical section. Upon the vertical section a spot (A) is made at the center of the circle, indicating the position of the central indicator of the apparatus. The distance between the two indicators is measured toward the temporal side, and a spot (B) made to show the position of the external indicator.

On the circle representing a horizontal section of the eyeball,

a spot (A) is made anterior to the center of the cornea, and at the same distance that the center indicator was from the eye when the radiograph was made. Another spot (B) to the temporal side, measured by the distance between the two balls of the apparatus, marks the situation of the external indicator.

Taking the first negative, with the tube nearly horizontal to the two indicators, we measure the distance of the foreign body below to the two balls of the apparatus. These measurements (B to D and A to C) are indicated on the circle representing the vertical section of the eye, and a line is drawn

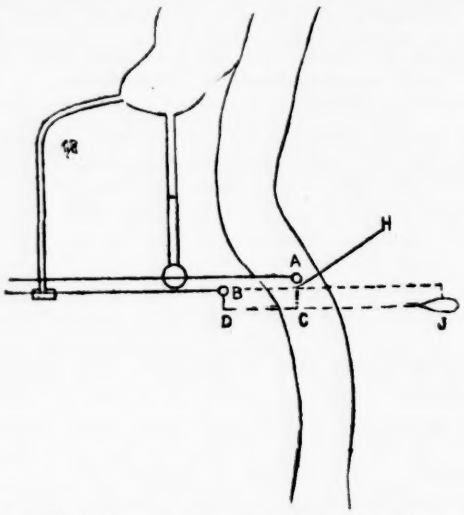


FIG. 2.—Outline drawing of negative made with tube nearly horizontal.

through the points (C, D). At some point along this line is situated the foreign body. From the second negative (Fig. 3), made with the tube below the plane of the two indicators, the measurement is taken of the distance (A, E). The shadow of the foreign body is below the center indicator, and this point (E) is indicated on the first circle. The distance the foreign body is above the external indicator (B, F) is measured, and the point indicated on the circle at (F). Where a line drawn

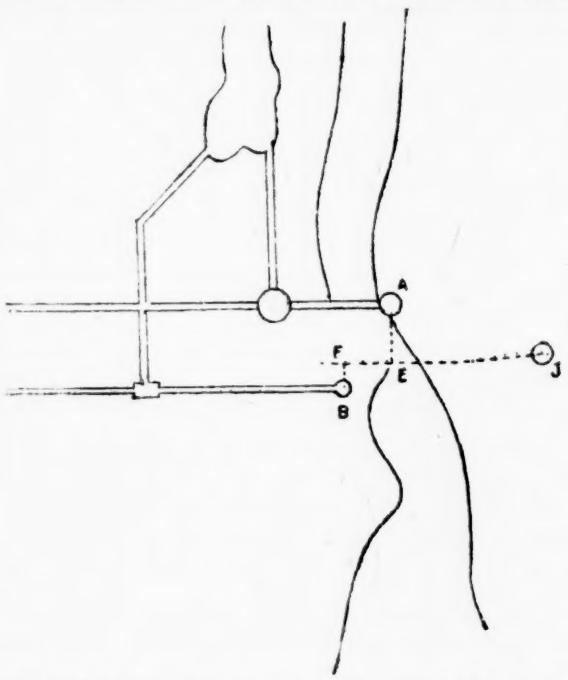


FIG. 3.—Outline drawing of negative made with tube below the plane of the two indicators.

through these two points crosses the line of measurements made from the first plate is the situation of the foreign body, as respects its horizontal and vertical position in the eyeball.

To determine the distance of the foreign body behind the apex of the cornea, the negative made with the tube nearly horizontal is taken, and a measurement made of the distance the shadow of the center ball is posterior that of the external ball (B, H). The distance is entered directly above the external ball on the diagram representing the horizontal section of the eye. From this point (H) a line is drawn through the ball (A) of the center indicator, which indicates the direction of the rays from the tube when the exposure was made. Taking the negative again, we measure the distance that the shadow of the foreign body is back that of the external indicator. This distance (B, J) is marked perpendicularly to the spot representing the ball of the external indicator on the diagram, and a line is drawn parallel to the direction of the rays from the tube (A, H). Where this line cuts a line perpendicular to the position of the foreign body shown on the vertical section of the eyeball is the distance the foreign body is behind the anterior portion of the cornea.

DISCUSSION.

Dr. D. C. BRYANT of Omaha—On account of the location of the eye within its bony cavity, it is difficult to find a foreign body with the X-ray or anything else in many instances. It is exceedingly difficult to locate the exact position of the foreign body. The use of the X-ray, so far as the eye is concerned, will always be somewhat limited in those few cases that we need help. If in a few cases it does help us to locate foreign bodies, or to prove that there is or is not a foreign body in the eye, it will be of great advantage. Outside of the eyeball itself, in the orbital cavity where we have larger foreign bodies, we know it is of great value.

Dr. ARTHUR D. BEVAN of Chicago—I imagine that this method of locating a foreign body in the eyeball might be enlarged and applied to the location of foreign bodies anywhere in the orbit, and I think it is very valuable because of a recent experience which I had in removing a bullet from the orbit, which I reported six months ago to the Chicago Medical Society. In this case a thirty-eight-caliber bullet struck the temporal bone. Probing could not locate it. There were no cranial symptoms. A blood clot, evidently in the orbit, protruded the eye. There was complete blindness for some days in the eye of that side. Within a couple of weeks the eyesight began to return. I had an X-ray picture taken and it located the bullet from one plane, but it was impossible to obtain good X-ray pictures at right angles in order to locate exactly its position. However, I determined from an analysis of the data at hand, with the X-ray picture, that the eye had been blind for some days afterward and pushed out of the orbit, and that the bullet must be somewhere in the orbit behind the eyeball. With that conclusion I operated and removed the bullet, but it took me an hour and a half. I had the general location of the bullet, in one plane, sufficiently accurate in my mind, but I was certainly three-fourths of an inch off in my position in the other plane, and in operating in the posterior portion of the orbit, in the position of the nerves and optic artery, I found it was slow work. I feel satisfied that the work could have been much simplified by an apparatus such as Dr. Thomson describes, and I can readily understand its great value.

As to the statement made in the paper that the disadvantages of the X-ray, using it in a wide sense, are very small and do not at all weigh against the advantages; there are disadvantages in the X-ray that we, in Chicago, are very familiar with, and I think from the reports of cases tabulated and published in the *Johns Hopkins Bulletin*, in regard to the injurious effects of the X-ray, should be very generally known.

I know of some cases in which great injury has been done by the X-ray. We are all familiar with the dermatitis which follows the use of the X-ray. I have seen two cases in which this effect has been extreme, followed by total destruction of skin, the superficial and deep fascia, and the existence of an ulcer for months after the use of the ray. I have also seen total destruction of the eye from the use of the ray and absolute loss of the ear from it. These are points which we should keep prominently in mind.

At the meeting of the American Surgical Association, held in Washington this year, Dr. White of Philadelphia read a paper on the same subject which seemed to belittle the possi

bilities of doing damage with the X-ray. I think we should all be very cautious of this. These serious effects are not so apt to occur now as they did heretofore, because the exposures are much shorter, and serious damage rarely follows exposures of fifteen or twenty minutes. So much is thought of the injurious effects following the X-ray, in Chicago at least, that the majority of men do not, themselves, take X-ray pictures. They throw the responsibility on the photographer, so much so that one whom I know, practically compels patients to sign a contract to assume all responsibility of injury when he takes an X ray picture. I feel quite positive that the days of serious dermatitis and injury from the X ray are numbered, because it is better understood and the exposures are shorter. But these injurious effects should be kept in mind and be widely known. They should be known to the patient who undergoes the X-ray exposure. We have no right to expose a patient without informing him of the possibilities. It should be done in order to protect surgeons from malpractice suits, and the photographer should be cautioned to exercise great care in the use of the ray.

Dr. R. HARVEY REED of Columbus, Ohio—I think the idea of using "triangulation" for the purpose of locating an object is a very valuable one, and it will undoubtedly aid us in locating bodies in the eye as well as in other parts of the body. But there is one point I will speak of, and that is the possibility of damages accruing from making an operation when the X-ray fails to locate what the surgeon is looking for. Here is a medico-legal point which is of no small importance, because, if the radiographist says that a foreign body of some kind is located thus and so and advises me to make an operation for its removal, and I make the operation and fail to find the foreign body, supposing it did not exist, then where would I stand from a medico-legal point of view? In the use of the fluoroscope and the X-ray in the bullet case which I reported this afternoon, the track of the spot was located nearly above the ear and a little above and back of the eye, and the radiographist, although not certain that was the point at which the bullet was located, felt quite sure that was the point at which we would find the bullet. I was not convinced and resorted to the ordinary methods that I would have used had I not had a radiograph taken, and the consequence was I trephined over the point of entrance and found the bullet in the skull as I had located it. Had I made the opening as indicated by the radiograph I would not have found the bullet, and the operation might have been followed by bad results. By using triangulation for the purpose of locating foreign bodies we can thus avoid, to a large extent, the possibility of making operations where no foreign body exists, or where we are mistaken as to its actual location.

Dr. S. C. BALDWIN of Salt Lake City, Utah—Reference has been made to the paper read by Dr. Willard before the AMERICAN MEDICAL ASSOCIATION, and in all of his experience the tube has been placed not closer than from twelve to fifteen inches from the body. As a result he has never seen any dermatitis, sloughing of the skin or anything of that kind. It is a point that might be considered in using the X ray for this purpose.

Dr. JAMES BURRY of Chicago—Where crude methods have been tried in the location of foreign bodies in the body, they have not been successful in a great many instances.

The tabulation of errors by the X-ray process is valuable for us. Dr. Reed would have been in the same position if he had trephined for the bullet where the skiagrapher thought it was, as the man that cuts into a foot for a needle that is in there and does not find it. The needle is there, perhaps, but not where it is located by the X ray process. If we report such cases it will have value in giving the process its true standing, and I think its medico-legal relations will soon be settled. I imagine that the greatest difficulty Dr. Thomson would experience in these cases is to get correct pictures. I have tried many times to get pictures of the eye, and through the nose, and have not been very successful.

Dr. THOMSON—I think our results in the use of the X-ray are largely due to the apparatus that we use. It is perfectly evident that the tubes formerly used were so small and imperfect that it was extremely difficult to take a good picture of the orbit such as I have described.

I am not sufficiently familiar with the pathologic conditions in fractures, etc., to say much about it. However, I should think that if a series of pictures were taken with a good apparatus, they would be valuable both from a diagnostic and medico-legal point of view.

I have seen cases where the hair has come out, and again where the patients have had a slight dermatitis. Some gentleman has devised a scheme which prevents dermatitis, or any deleterious effects, by allowing the X-ray to pass through a small film of gold leaf.

OPERATIVE TREATMENT OF IRREDUCIBLE DISLOCATIONS OF THE SHOULDER JOINT, RECENT OR OLD, SIMPLE OR COMPLICATED.

BY EDMOND SOUCHON, M.D.

PROFESSOR OF ANATOMY AND CLINICAL SURGERY, TULANE UNIVERSITY; FELLOW OF THE AMERICAN SURGICAL ASSOCIATION.

NEW ORLEANS, LA.

HISTORY.

One morning in 1895, upon visiting my wards in the Charity Hospital, I found an old man with a case of irreducible dislocation of the shoulder of three months standing. He suffered much pain and was anxious for relief. I remembered having seen, during the many years of my connection with this hospital, some eight or ten cases of such irreducible dislocations. Two, who had been put through the extension and manipulation processes, had suffered fracture of the bone near the head. None of those who had resisted tractions and manipulations of all sorts, had been operated; all had been turned away to remain crippled for the remainder of their days. And yet they were under the care of such men as Stone, Richardson, Smyth, Logan, Chopin, Schuppert, all men of recognized judgment and unsurpassed daring. Later, upon writing to a member of this ASSOCIATION, who had once graced the presidential chair, for information on the subject, he answered that very few surgeons operated upon these cases and they were left to be maimed for life.

To show the unsettled condition of mind of some prominent surgeons, I will state that in a private communication from one of them, attached to one of the largest hospitals in this country, he says that the question arose as to whether operative interference should be attempted, and having called in consultation two other prominent surgeons, it was finally decided to operate.

My first impulse was to follow the tradition, but the patient complained so much that I determined to operate, if but to relieve the pain due to the pressure of the dislocated head upon the nerves and vessels. Before doing anything, I attempted to post myself on the operation, but text-books were almost mute on the subject; standard works even said nothing, or very little; special cases or monographs were not at hand and too far away to be had in time. The history of the case is given further. Once engaged in this line of thought I became intensely interested, all the more so, that another case had presented itself at the hospital in the meantime and was awaiting treatment. Upon making bibliographical researches I was quite amazed to see how much the subject had engaged the attention of a number of surgeons, and also how inconceivable it was that in spite of this, so little was to be found in text-books and others on so important and captivating a subject. The first cases are reported by Weinhold and Swanzig in 1819, and by Wattman, 1820. After an interval of nearly twenty years comes a case by Dieffenbach in 1839, and after another lapse of thirteen years, the case of Simon in 1852. The indefatigable Langenbeck then follows with three cases in succession, and Post with one in 1861. Almost every year after this at least one case is reported. In the sixties, three cases; in the seventies, twenty-two; in the eighties, forty-nine. As we draw near the present date, cases become more numerous; the year 1891 alone saw thirteen cases; 1893, eleven;

1895, seventeen. Special papers or dissertations more or less important have been written by some eight or ten surgeons. Of these the particularly important, valuable and epoch-making are those of Knapp, 1889;[1] Smital, 1890;[2] Delbet, 1893,[3] and McBurney, 1895;[3]* all within these late years. In this array of cases American surgeons have contributed largely. Ollier says that the first resection for irreducible dislocation was performed by Post of New York,[4] and the second one by Warren of Baltimore.[5]

The second French Congress of Surgery put up the question of interference in irreducible dislocations; a certain number of communications were made regarding interference in dislocations of the shoulder,[6] but they are based upon insufficient data.

FIFTY-SEVEN DIVISIONS, FORMS AND VARIETIES OF OLD IRREDUCIBLE DISLOCATIONS OF THE SHOULDER.

The subject which is now engaging our attention presents from a clinical and practical standpoint a number of forms and varieties which must be well defined at the outset. By clinical form and variety we mean a condition characterized by some feature or features bearing upon the diagnosis, prognosis, treatment and result. These various forms and varieties may be summarily stated as being: 1, recent, simple or complicated, and operated by reduction or resection; 2, old and simple, forward, downward, etc., and treated by reduction or resection through an anterior incision or an axillary or a posterior incision; or treated by subcutaneous sections (fibrous, tendinous, muscular, osseous), or by osteoclasia; 3, forms and varieties due to causes anatomic or physiologic, to causes pathologic, to complications, to recurrences; 4, to the sequels of the operation.

Guide.—Each operated case presents to study the diagnosis or kind of dislocation, its duration or time of standing, the condition of the muscles, of the limb, shoulder, arm, forearm, hand; extent of each movement without or with participation of the scapula, paralysis, paresis, atrophy, weakness, electric reactions; of the artery as revealed by the radial pulse; of the veins, by the edema of the hand or forearm; of the nerves, by anesthesia or pains; the operation performed; the difficulties and complications during the operation; complications after the operation; the results immediate, the results remote or final; the remarks and the references.

We will not mention these headings in each case, but the reader will bear in mind the order followed in describing the peculiarities.

This study rests on 157 operated cases, of which 23 are recent and 134 old cases. It is rare cases that most require collective and minute investigation since one operator has seldom the opportunity to acquire extensive personal experience and has to rely upon that of others. Hence we report herein the histories of the cases with all details of interest, which are so eagerly sought and so gratefully appreciated by operators who have a rare and difficult case to treat.

We always append the year to the name so as to identify the case throughout, specially when the name of the same operator has been repeated in two or more cases.

Incomplete data is a very serious obstacle to a thorough study.

Important rule.—No operation should be attempted before all possible means of bloodless reduction have been conscientiously applied in recent as well as in old irreducible or unreduced dislocations. However, very sound judgment has to be exercised as to the degree of force to be used, lest more or less extensive tears take place in the muscles, vessels and nerves or fracture of bones, forcing an operation at a great disadvantage.

The word irreducible is here adhered to because it conveys the idea that all bloodless means have been attempted but in vain and that nothing remains to be done but operate. Whereas the word unreduced might lead one to think that nothing at all had been done.

IRREDUCIBLE DISLOCATIONS RECENT AND SIMPLE.

We will call recent all dislocations no older than a month; this is somewhat arbitrary but is adopted to fix a limit.

1. *Irreducible dislocations, recent, simple and forward, teated by arthrotomy and reduction through an anterior incision*, are three in number reported by Stimson 1890, Parmenter 1891,[8] Keener 1894.[9]

The duration of the dislocation was two days (Stemson), one week (Parmenter), four hours (Keener). In Stemson's case, the head was arrested by the tendon of the subscapular, which was sectioned and reduction easily effected; in Parmenter's case the tendon of the two spinous and of the subscapular muscles had to be divided and even then the reduction was difficult. Complications following the operation were totally absent in the three cases. All report primary union. The remote results are fair only in Parmenter's case, good in Stemson's and very good in Keener's. Therefore the early interference in these cases is favorable.

2. *Irreducible dislocation, recent, simple and forward, treated by resection through an anterior incision*, is represented by the single case of Wyeth 1895.[10] It was twelve days old. Through an anterior incision, McBurney's hooks were inserted in three different places, but without avail and the head had to be resected. Severe shock followed and death resulted in twelve hours. As far as this single case is concerned it seems to show that resection is a more secure operation.

3. *Irreducible dislocation, recent, complicated with fracture and having been subjected to violent efforts at reduction* should not be operated on until the inflammation has abated, lest we encounter bruised and lacerated tissues which would more easily suppurate and thus give rise to a double compound condition, the open joints and the focus of the fracture.

4. *Irreducible dislocation, complicated with fracture below the head and forward, treated by an anterior incision with arthrotomy and reduction*, has been recorded by Stemen 1893, two cases;[11,12] Porter (C. B.) two cases 1893 and 1896;[13,14] McBurney 1895 and 1896;[15,16] Berger 1896;[17] Bull 1897.[18]

The duration was a few hours in one of Stemen's cases, nine days and one month in Porter's two cases; two weeks in McBurney's, sixteen days in Berger's, two days in Bull's. All used an anterior incision down to the bone. Stemen seized the end of the upper fragment with lion jawed forceps. In one case Porter drilled a hole in the head of the bone and inserted a hook. McBurney inserted a peculiar one of his invention; Berger seized the tuberosities with strong forceps (Xavier Farebeuf), Bull tried McBurney's hook but had to pry the head into place with a periosteal retractor. No difficulties nor complications were experienced by Stemen, McBurney and Bull, but Berger states that he had to pull with great force

to disengage the head and bring it in the glenoid cavity; he mentions no injury to the tuberosities. Porter (No. 2) removed a number of fragments and stitched the head to the shaft. McBurney stitched the head to the tuberosity and shaft with catgut. No sutures through the bones were thought necessary in the other cases to insure proper adjustment of the fragments. No complication followed the operation and primary union took place, except perhaps in Berger's case where it is not stated, and in Porter (No. 2) where long suppuration followed and the head had to be removed. The remote result was only fair in Berger's case, good in Stemen's and Bull's, very good in Porter's No. 1, and in McBurney's; improved only in Porter's No. 2. The conclusion is that various instruments therefore can be used, carefully, to replace the head in obstinate cases, and that suturing may give a good result.

5. *Irreducible dislocation, recent and forward, complicated with fracture below the head, treated by resection,* is recorded only once by Tripear.[19] It was thirteen days old; there was a comminuted fracture with pieces wedged in between the humerus and the glenoid cavity together with a fracture of the surgical neck. A serious complication was an aortic insufficiency with a hypertrophied heart. The union was secondary and the convalescence delayed and interfered with by the circulatory disturbances just mentioned. The final result was only fair.

6. *Irreducible dislocation, recent, complicated with fractures of the head with dislocation of the head in the axilla treated by reduction,* is represented by the unique case of Wölfler,[20] who pegged the head back and reduced it. No difficulties or complications are reported; no complication is noted as following the operation; the union was primary and the final result good. McCormac says that Helferiot also used the peg, but he gives no reference. It is noticeable that the head loose in the axilla has never been known to become necrotic (McCormac). The danger of such procedures is the consequent callus causing more or less limitation of movement if it be large and irregular.

7. *Irreducible dislocations, recent, complicated with fracture of the head, with dislocation of the head in axilla and treated by resection or removal,* are comparatively numerous, reported by Morton, 1884[21] (T. G.); Manclair, 1889;[22] Croft, 1891;[23] Poirier and Manclair, 1892;[24] Clutton, 1892;[25] Monks, 1895,[26] and McGraw, 1896.[27] The duration or standing of the injury is laid down as recent (Morton and Croft), eight days (Clutton), four hours (Monks), four weeks (Poirier and McGraw). All were operated by an axillary incision and by resection, *i. e.*, by removal of the dislocated head, all without serious difficulty. McGraw notes also a second fracture below the tuberosities. No complications followed the operation and primary union is noted in all the cases. All recovered with a final result good in Croft's, Clutton's, Poirier and McGraw's; Monks' case died, apparently of shock. Clinical experience therefore is in favor of the removal of the head in such cases.

8. *A case of irreducible dislocation, recent and backward (subspinous), complicated with fracture of the head,* is reported by Brinton.[27]* The head was resected, *i. e.*, removed and the extremity of the fragment smoothed and brought into the socket. The wound suppurated, but the final result was satisfactory.

Remarks.—Stimson condemns open arthrotomy, when a recent fracture is present.[28]

He also condemns primary excision of upper fragment; he says, wait until inflammatory and reparative processes have ceased, then remove the upper fragment if it seems advisable (Stimson, p. 257). In view of the results above recorded a more modern opinion was solicited from so high an authority. The courteous answer is as follows:

"The opinion expressed on page 257 is I still think sound, although added experience and improved technique have diminished the risk incurred by operating under the conditions mentioned. I still think that arthrotomy through torn tissues infiltrated with blood and inflammatory exudates is hazardous because of the chance of suppuration, and I think the special risk begins and increases after the first or second day. I do not condemn the early operation or primary excision when indicated; I have practiced both and with success, but I here warn against the risks of what may be called the tardy early operation cutting into swollen discolored tissues about severe injuries after the second day. The statement first referred to needs now to be supplemented by mention of McBurney's brilliant method of reducing the dislocated upper fragment, in which the incision does not open the joint or pass through torn tissues.[29]

The following remarks from McBurney's valuable contribution are worthy of note. Surgeons have been agreed that whenever fracture and dislocation of the same bone has occurred the dislocation should first be reduced if possible.[30]

We must again recall the important rule not to operate before trying to reduce, and the following remarks of McBurney are most timely. When the fracture is near the head the heel process is useless and dangerous.[31]

Manipulations by pressure with the thumbs and fingers on the head are most infrequently successful.[32] It succeeded in thirty-six out of eighty cases.[33]

Failing to reduce, some surgeons have treated the fracture until firm union had taken place, and using the repaired shaft for extension, rotation or leverage, endeavored to reduce.[34] Three cases out of ten are reported as successful but not without criticisms.[35]

Riberi practiced passive movements to establish a false joint at the point of fracture.[36] It may succeed where the fracture is high up and the lower fragment has been raised by muscular contraction outside the upper one and near to the glenoid cavity.[37] Seven cases are reported as successful but there are no details as regards movements, pain or disability caused by the dislocated head.[38]

Reduction by open arthrotomy and subsequent treatment of the fracture is preferable to resection of the fractured head, because it offers the prospect of a more nearly perfect final result than the other plan.[39] In case of reduction the bones should be sutured.[40] If union fails reaction should be made at once.[41]

If reasons exist for not performing the operation of open arthrotomy and reduction, the resection of the head might well be left for subsequent consideration, and then after all acute symptoms had subsided, be resorted to in case sufficient pain or disability existed to call for this secondary operation.[42] It has occurred to me that the hooks might be useful in some cases of old dislocation of the humerus in applying counter-extension to the scapula, *i. e.*, by applying also a hook at the base of the spine of the scapula.[43]

IRREDUCIBLE DISLOCATIONS, OLD AND SIMPLE (ONE HUNDRED AND SIXTEEN IN NUMBER).

9 and 10. *Irreducible dislocations, old, forward, treated through an anterior incision by arthrotomy and reduction, and by arthrectomy or resection.*[44 45]— Some twenty different difficulties and complications have been mentioned by operators in dealing with those cases; capsule thick, dissection tedious, reduction difficult, excessive fibrous tissue around the head and surgical neck, head deeply seated, head adherent to ribs, extensive muscular dissections, old fractures of the tuberosities, of the glenoid cavity, of the humerus; glenoid cavity filled with remnants of the capsule and fibrous tissue, glenoid cavity readily freed or cleared; parenchymatous hemorrhage during the operation, wounds of vessels during the operation, rupture of the axillary artery in trying to reduce before and after cutting, and various other difficulties.

Some of these difficulties and complications are common to both operations or are as liable to occur in the one as in the other. They are: new capsule thick, dissection tedious, excessive fibrous tissue around surgical neck and head, head deeply seated, head adherent to ribs, old fractures of the tuberosities, glenoid cavity and humerus, glenoid cavity filled with remnants of capsule and fibrous tissue, parenchymatous hemorrhage during operation, wounds of vessels during operation and sundries.

We find the following more frequent in reductions: reduction difficult, extensive muscular incisions, glenoid cavity normal, glenoid cavity freed and cleaned; fracture of humerus in trying to reduce before or after cutting; one notes that the greater tuberosity had to be cut away in order to be able to unite the edges of the muscular and cutaneous wounds; one, that the head of the humerus was partially destroyed; another, that there was crepitation in the joint. We note as more common in the cases of resection: excessive fibrous tissue around fractures of the head or the surgical neck; hemorrhages and sundries. Although reduction difficult is naturally more frequently mentioned in cases of reduction 24 per cent., yet we find that in 10 per cent. of resected cases it was difficult to place the sectioned extremity of the humerus in or near the glenoid fossa. Excessive fibrous tissue is noted specially in 28 per cent. of resections against 15 per cent. of reductions. Hemorrhages have occurred oftener in resections, although there is no special reason to account for this; on the contrary, they should be more common in reductions since these usually require more extensive dissections. Most of the sundry difficulties and complications mentioned in connection with resection are all of such nature as to have rendered resection the only operation possible. The complications noted after the operation are, hemorrhage, gangrene of the limb, suppuration, necrosis of head and of sectioned extremity and the formation of a false joint in a case of fracture. Hemorrhages are more frequent in resections, 4 per cent. against none in reduction. Suppuration is twice as common after reduction. Necrosis of the head occurred in 16 per cent of the cases of reduction against 2 per cent. of necrosis of the sectioned extremity of the humerus.

As to results immediate, primary union is noted in 26 per cent. of reduction and 30 per cent. of resection. Short suppuration occurred in 17 per cent. of reductions against 22 per cent. of resections. Long suppuration shows 10 per cent. in reduction and 16 per cent. in resections. This is all the more remarkable that reductions necessitate more extensive dissection, and that the head and cartilage have often been reported as necrotic in reductions.

The results remote or final show: Death 10 per cent. in reduction and 12 per cent. in resections, the causes of the fatal result are in reductions, bronchitis, sepsis, apoplexy and tubercles in the peritoneum. In resections, sepsis, gangrene from ligation of the axillary artery, secondary hemorrhage and pneumonia. All these causes of death are preventable today except tuberculosis, apoplexy and pneumonia, which are accidental. Hemorrhage can be averted by keeping close to the bone all along, in the capsulo-periosteal sheath, using a sharp chisel and hammer against the bone throughout, actually scraping the bone of its superficial compact tissue, a sharp chisel will require less force to do effective work and is therefore less apt to slip and injure the vessels specially under the influence of the hammer strokes. The dissection should proceed from backward forward. Sepsis we understand how to prevent, but it seems that those cases call for extra care. The neglect to apply such systematic procedure as is recommended by Ollier to test the extent and strength of the various movements, renders it difficult to judge of the true benefit of the operations, and we must be contented with the results as expressed by the operators. In a number of cases the final result is not stated. Mere improvement is not so often noted in reductions 5 per cent., as in resection 28 per cent. Fair results are quoted as 16 per cent. in reduction and 6 per cent. in resections. Good results mark 5 per cent. in the cases of reduction against 42 per cent. in resections. Lastly, the results in good to very good is 3 per cent. of reduction and 87 per cent. of resection. If we consider only the cases noted as fair, good and very good we find 69 per cent. of reductions against 57 per cent. of resections, in spite of the comparatively frequent necrosis of the head in reductions. The 16 per cent. of necrosis of the head in reductions followed by resection of the head should truly be placed to the credit of resections. The figures of percentages are most likely only approximate, because in all probability all the operated cases, good and bad, specially the latter, have not been reported.

By comparing the dates we do not see that asepsis has as yet made its full impress upon either operation. We find all the cases of necrosis of the head occurring since 1887 (Blasius), when the new era is considered to have been in operation everywhere, specially under the men of mark who stand as the operators.

General and final conclusions in regard to forward dislocations.—From the foregoing study we feel justified in formulating the following conclusions: The anterior incision is the best route. Reduction is the more desirable operation because it preserves the head and all the movements depending therefrom. Reduction should be done only in cases where the head and glenoid cavity are in good condition; when no extensive dissections have to be made; when it is easily effected without any great effort; when the head does not need to be trimmed or the cup to be too deeply scooped or enlarged; when the head readily remains in place but not too tightly. All this regardless of the time or standing of the dislocation. It should, however, always be attempted conscientiously, because many have resected perhaps when the dislocation could have been reduced. Disregard of these rules may result in necrosis of the head, in recurrence of

the dislocation or in anchylosis with their inevitable consequences.

Resection should be practiced in all other cases. When in doubt it is preferable to resect. How much to resect, *i. e.*, where to saw, through the anatomic neck or obliquely and downward outside the tuberosity, or horizontally on a level with the lower margin of the head, must be determined in each case; it is best to remove too much than too little.

All efforts should be made to secure aseptic results. Extra care is called for in these cases, but especially those of reduction.

Remarks.—We append here some interesting remarks on the causes of the difficulties of reduction, mostly from Delbet's paper, which was based specially on forty-four autopsies of old dislocations.

Exceptionally the fibro-cartilage of the margin of the cavity is detached, and also the periosteum, both remaining continuous with the anterior ligaments and forming a pouch under which the head is lodged; those are called subcapsulo-periosteal dislocations (Hartman and Broca). In place of the natural capsule, there is in some cases a thick fibrous mass extending from the acromion and the deltoid to the cup and to the head of the humerus; the head has truly lost its right of domicile.[46] Sometimes the remains of the old capsule becomes partly ossified[47] (*Key. Os sesamoids dans les tendons dessus épineux, dessous épineux et du petit rond.* Kocher, *Observation III*). The capsule, stretched over the glenoid cavity, may be found adherent to it (cases of Bourgeois, Bordet, Burckhardt, A. Cooper, Key, Demana, Hartman and Broca, Houel, Knapp, Kocher (one autopsy and two operations, *Obs. III* and *VII*); Lépine, Maas, Malgaigne (two cases); Pfeiffer, Quenain, Smital (two cases); Thore, Vamossy, Wattman[48]. In some cases the rent in the capsule has healed so completely behind the head as to prevent reduction. The capsule was ossified in a case of Kocher (No. 3). In another the glenoid cavity was filled with a thick layer of bone.[49] It is very seldom that the cartilaginous portion of the head gives insertion to fibrous bands.[50] Usually the new ligaments or adhesions or capsule extended from the margin of the new cavity to the neck of the humerus.[51] The anterior part of the neo-capsule is usually very thick, two millimeters or more, and very resistant; it is often adherent to the vessels and nerves. In one case of Lister, seven weeks old, the artery was surrounded by these fibrous bands.[52] Often a strong fibrous band, well described by Malgaigne, extends from the inferior surface of the acromion to the head of the humerus near the greater tuberosity. This is well mentioned in the cases of Bardenheuer, Faure, Fauratier, Houel (Dupuytren Museum, 731 A). Malgaigne.[53] The tendon of the biceps may remain in the groove and follow the humerus. It is more or less blended with the neo-capsule and it is often difficult to dissect it. Sometimes it is adherent to the groove (Parmenter). In some cases the tendon is disinserted from the groove, glides behind the head, where it forms a tense cord in front of the glenoid cavity (Kocher, two cases, *Observations* V and VI; Gauderon, Knapp, Lépine, G. Smith, two cases; Schede).[54] In operating, take care of the long tendon of the biceps. It is said that it is never displaced from its sheath in ordinary subcoracoid dislocations of the limb.[55] The tendon of the biceps should be preserved or stitched back.

The muscles or their sheaths, or both, often undergo sclerosis and this prevents reduction of the head, as proved by successful reduction only after the section of the muscles (Dieffenbach, Weinhold, Bardenheuer, Ollier, Kocher, Bordet, Cooper, Parmenter). The deltoid and the supra-spinous are the muscles which oppose mostly the reduction.[56] In some cases the anterior edge of the glenoid cavity forms a part of the new cavity, and this condition renders reduction illusionary and probably useless. This is met with once in every five.[57] The old glenoid cavity becomes filled up by fibrous tissue.[58] The inner edge of the new cavity found on the scapula presents usually a high rough edge.[59] The head proper of the humerus may remain normal, but it is usually flattened behind where it is articular. Its front part becomes covered with more or less irregular projections or stalactites.[60] With all this it may also be very large, rendering reduction impossible. The small tuberosity is sometimes torn away by the subscapular.[61] The greater tuberosity when torn away and loose from the muscle drops into the old glenoid cavity. When it still remains attached to the muscle it becomes united, but in an irregular manner, causing deformity and considerable widening of the region.[62] In some cases the tuberosities are very much enlarged without any trace of fracture.[63] All those anatomo-pathologic changes occur sometimes rapidly. The adhesion of the capsule to the cup has been found after two or three months, the head flattened after one month, even twenty-three days; the muscular retraction after five weeks.[64] Usually several of the causes combine to prevent reduction or resection; it is very seldom that a single cause accounts for it.[65] What influences the results most is the degree of the lesions, the condition of the muscles, the manner in which the operation is performed in regard to asepsis, the individual predisposition; some patients manufacture fibrous tissue so rapidly that it is very difficult to prevent anchylosis, such as rheumatic patients.[66] The axillary route was advised by Langenbeck, because of the projection of the head into the axilla.[67] It allows an easy resection. But it does not permit reduction if it were possible; it does not enable to clean out the cup; the vessels and nerves are more exposed to being wounded, specially the circumflex; the upper parts of the new and of the old capsules are immovable and can not be destroyed, and as they prevent the head from bulging it renders the resection more difficult.[68] The posterior route was recommended by Charles Nélaton, but it does not allow of any access to the anterior part of the head and of the adhesions of that part.[69] The antero-external route is the one which has scored the greatest number of successes.[70] The incision of Langenbeck, acromio-humeral, is a more vertical one than the next one; it gives an easy access to the cavity, but it renders the head less accessible.[71] The inter-pectoro-deltoid incision is rather farther from the cavity, but it gives a better access to the head.[72]

The normal or good condition of the muscles of the shoulder is a circumstance which has been too little considered in regard to the probable result of a severe operation (arthrotomy or resection).[73] A most important point is to get primary union. Suppuration is more frequent in arthrotomy.[74] The functional result depends specially upon the after-arrangement. At first place the arm in the position which keeps best the head in the cup; next follow the instructions laid down by Ollier in his "Treatise on Resection."[75]

11. *Irreducible dislocation, old and forward, treated*

through an axillary incision by arthrotomy and reduction, is represented by one case only, that of Kocher (No. 1), 1889.[76] The greater tubercle, which was broken off, had to be resected in order to be able to reduce; the capsule was very much thickened. There was suppuration followed by resection of the head. Seven months after the joint was almost completely anchylosed.

12. *Irreducible dislocation, old and forward, treated through an axillary incision, by resection.*—There are eight cases on record, by Langenbeck 1860,[77] Lester 1873,[79] Spieker 1876,[80] two cases,[81] Langenbeck again in 1877,[82] two cases,[83] Volkman 1882[84] and Nélaton in 1888.[85] In Langenbeck's of 1860 the great tuberosity had been fractured; Lister had ruptured the artery in trying to reduce before cutting; Spieker also found that the great tubercle had been broken off in his two cases. Nélaton mentions the same complication. In case number two of 1877, Langenbeck found the operation laborious because the head was more deeply seated than appeared; there was also considerable hemorrhage requiring the ligation of many vessels, probably of the subscapular, in the depth of the wound. Volkman speaks also of great difficulty; the lower tuberosity was broken, there was hemorrhage due to injury of the axillary vein by a splinter of bone; the vein was ligated. Nélaton says that the posterior portion of the articular capsule was flattened against the glenoid cavity, was thickened and did not permit itself to be sufficiently separated to allow the head to be reduced; to overcome this obstacle it would have been necessary to split the capsule transversely, but the incision having been made in the axilla, the capsule could only be reached with the tip of the finger from deep in the wound and it would have been difficult to introduce a bistoury, so resection was done. Following the operation, Lister mentions great shock; there was suppuration in Spieker's two cases, erysipelas in Langenbeck's case number two of 1877. The cases of Langenbeck 1860, and number two of 1877, and of Volkman healed primarily; Spieker number one showed short suppuration, and his case number two long suppuration. Death followed in the case of Lister in three hours, of Spieker number two from sepsis, and of Langenbeck number two 1877 from erysipelas and sepsis. The results found are therefore three deaths (Lister, Spieker number two, Langenbeck number two 1877); little improved Langenbeck 1860 and Langenbeck one 1877; improved simply in Spieker one. This route is therefore fraught with danger and should not be followed in cases of forward dislocations.

13. *Irreducible dislocations, old and forward, treated through a posterior incision by arthrotomy and reduction.*—Two cases are on record by Schonborn (No. 3),[86] 1885, Mudd 1895.[87] Repeated attempts were necessary in the case of Schonborn; the acromion process, which had been detached according to Kocher's method, was with difficulty pressed back into position by Mudd. Recurrence of the dislocation upon dressing took place in Schonborn's case. The healing of the wound was even in Schonborn's; primary union took place in Mudd's case. The results remote were good in Mudd's case; it is not mentioned in Schonborn's.

14. *Irreducible dislocations, old, simple, forward, treated by subcutaneous sections of fibrous bands, tenotomy, myotomy.*—Five cases stand on record: Weinhold-Swanzig 1819,[88 89] Dieffenbach 1839,[90] Simon 1852,[91] Polaillon 1882,[92] Mollière 1886.[93] Weinhold picked up a fold of skin, the external portion was incised transversely to the extent of half a finger's breadth from the insertion of the great pectoral, very forcible extension being kept up. While this was accomplished, wound was increased in length to the extent of nearly half a finger's breadth; immediately the humerus approached near the glenoid cavity and returned in place. The operation was simple in the case of Dieffenbach; it was done in one sitting when traction reduced the head; Simon did it in three sittings; Polaillon attempted reduction only three days after the tenotomy. There were no difficulties and complications during the operation nor after. The results remote are stated as being very good in all five cases. It is astonishing that a method so simple, so safe, and giving such perfect results, should not have been tried oftener. However, when we consider the great difficulties encountered in an open operation betore the head can be reduced, when it can be, after the necessary sections have been freely done, it is really most probable that the method has been tried but has been found wanting and the failures have not been recorded. It seems best adapted to selected cases.

15. *Irreducible dislocations, old, forward, treated by osteotomy of the neck.*—We could only find one case on record by Dr. Mears.[94] It was a subcutaneous osteotomy as practiced by Mr. Adams. The operation presented no difficulty nor complication, nor were there any complications after the operation. The wound healed without suppuration; the result remote was good for a while, but later a callus formed and the result proved to be very unsatisfactory. This ought not to encourage in such an operation. The writer proposes the following operation in place of subcutaneous osteotomy or osteoclasia, in cases where there are no serious pressure symptoms and the patient is not in a condition, from age or debility, etc., to stand a long operation with possible injury to the vessels and their consequences: After exposing the bone, resect at least one inch of the shaft where it joins the head; place the resected extremity in or near the glenoid cavity and begin passive motions early. This procedure leaves the head in an abnormal position, and that is the great objection to it, but it is a more simple and quick operation than the regular one for reduction and resection when the head is firmly and extensively bound down, in the class of cases above referred to. It is sometimes difficult to decide from the description of the case if it is a downward (subglenoid, axillary) or a forward dislocation (subcoracoid, preglenoid) that is meant.

16. *Irreducible dislocations, old and downward, treated through an axillary incision*, are represented by three cases: Langenbeck 1877,[95] Patterson 1879,[96] Thomas 1885.[97] There was no special difficulty or complication, except that in the case of Thomas the operation was long and tedious, great difficulty in freeing the head; it had to be removed by slices. In this case of Thomas there was suppuration after the operation. There was primary union in all the cases except Thomas', in which the wound closed at the end of the second month. In this same case there was little improvement; in the two others the final result is not recorded. The operation should be performed but may prove not so very easy.

17. *Irreducible dislocations, old and downward, treated by osteoclasia.*[98] One case that of Desprès. It

consisted in the deliberate fracture of the neck so as to be able to bring the arm closer to the body; the forced elevation of the arm causing it to press against the acromio-coracoid vault or arch, determined the fractures; a cracking sound was heard and crepitation felt. There was no difficulty, no complication during the operation. There was formation of a callus, it was impossible to obtain a false joint, and the operation resulted in a thorough failure. This procedure should be rejected except perhaps in special cases when a more serious operation is out of the question. It is to be remembered that several cases of fracture in trying to reduce have been followed by fair results.

18. *Irreducible dislocations, old and backward, treated by resection in the adult.*—There are three cases reported by Reid 1877,[99] Adams 1888,[100] Brinton 1897.[101] (The cases of Post 1881 and of A. M. Phelps 1895, are congenital and will be considered under that head.)

Reid's case was 53 years old. The age of Adams' case is not mentioned. No difficulties were mentioned. No complications after the operation are noted. The results immediate are not described. The results remote, not improved in Reid's case; fair in Adams'. Although these results are not brilliant they suffice to justify the operation.

Brinton's case was complicated with a united fracture below the tuberosity, the final result was satisfactory.

19. *Irreducible dislocations, old and simple, with a limb useful in its new position* to all intents and purposes to the patient should not be operated.

20. *Irreducible dislocations, old and congenital, operated by reduction*, are three in number, operated by Küster 1882,[102] Schede (No. 3) 1892,[103] and Brown 1897.[104]

Küster's case was 14 months old at the time of the operation. Schede's case was 8 years, but the luxation was congenital and intra-partum, as was proved by the doctor who attended the mother's confinement. Brown's child was several months old when operated. In Küster's case the head was freed, brought forward and rotated. In Schede's, the head was freed, the glenoid cavity enlarged and deepened, and the anterior part of the capsule removed; the posterior part is freed from the glenoid cavity and drawn forward so as to cover the head; dislocation reduced; the coracoid process had become more crooked and longer and bridged over the inner portion of the normal cavity in such a way as to prevent reduction; it was separated partially at its base by an osteotomy and broken so far backward that it no longer prevented reduction. The reduction is easy in Brown's case. There was fever and suppuration in Küster's case. In Schede's suppuration also and later the greater tuberosity was found to be necrotic and was removed and and the healing was gradual. Brown's case healed kindly. Death resulted in Küster's case, one month after operation, in Schede's the result was good. Brown's case was much improved. In Küster's case there was also a similar dislocation on the other side, but it was not operated.

In résumé the operation should be done, as there is no other alternative but observing the rules governing reductions as set forth above.

21. *Irreducible dislocations, old and congenital, treated by resection.*—There are three cases on record, one by Post 1861,[105] and two cases by Phelps (A. M.) 1895.[106 107] Phelps mentions one case operated by Gerster and four other operated cases, but he gives no references. All these cases are backward dislocations, subspinous. The operation performed in Post's case was a longitudinal incision made over the posterior edge of the deltoid, dividing the fibers of that muscle and exposing the head of the humerus, which was found to be dislocated on the back of the scapula; the capsule was denuded and the extremity of the bone turned out; a leaden spatula was pushed beneath the bone to protect the soft parts and exsection with a saw, made of the upper extremity to the extent of three quarters of an inch. On examining the limb and moving it in different directions it was thought best to remove an additional portion of the bone, the second portion removed being nearly as long as the first; the hand was then brought forward across the anterior portion of the chest, where it lay in a very easy position without apparent difficulty; the edges of the wound were brought together by means of eight twisted sutures made with insect pins. In Phelps' case (No. 1), a curved incision was made along the lower edge of the deltoid in the scapula and the flap turned down; it would, he said, have been better to curve the incision downward and turn the flap upward, as it would give better drainage. The posterior edge of the glenoid cavity was gone, the cavity was about two-thirds the usual size; it was considered whether to enlarge the cavity or trim the head of the bone; it was decided to do the latter, because, had the cavity been enlarged it would have been necessary to shorten the humerus in order to replace it; the remote result might have been, in bringing the two raw surfaces together, anchylosis of the joint; a portion of the head of the humerus therefore was cut away in order to fit it into the socket; also a portion of the redundant capsule, posteriorly; the bone was replaced and a stitch put in behind to help retain the head in place. There was no complication following the operation, except in Phelps' second case, which suppurated. The immediate result is not mentioned in Post's case; in Phelps' No. 1 the drainage tube was removed at the end of a week; in case No. 2 a counter opening had to be made. The remote result not stated in Post's case; in Phelps' No. 1 it was very good, and in case No. 2 only fair. The operation is thoroughly indicated. Dr. Phelps says the method promised success during the first year, although one case has been operated in which it was successful in the fifth year; he gives no references.

22. *Irreducible dislocation in young subjects*, that is, in children and in subjects under 17 and 18 years of age, should be treated by reduction, if possible, or by resection of only the cartilaginous portion of the head. It is most important not to injure the epiphysial cartilage. The ossified portion of the head may be removed, but the epiphysial cartilage between the head and the shaft must be spared if possible. A horizontal section, with the saw starting at the internal insertion of the capsule around the head will surely carry away the totality of the conjugating cartilage.[76] In young children, if the resection is made below the epiphysial cartilage the arm will cease to grow. The resected extremity should not be pushed into the glenoid cavity in children, lest the growth of bone cause anchylosis.[77]

23. *Irreducible dislocations, old, in old or debilitated subjects* should not be operated, except under very favorable local and general conditions, or under serious indications. Resection of one inch of the

shaft where it joins the head is best adapted to these cases.

24. *Irreducible dislocations, old and double, i.e., on both sides simultaneously, and operated,* have been reported three times: Lister (two cases), 1889–90; Reid, 1880. Lister's first case was operated by reduction on both sides, with an interval. His second case was operated by resection on the right side and reduction on the left. Reid's case was a double subclavicular, and the two sides were operated by resection at an interval of two and a half months. These cases have already been considered as regards operation, difficulties, etc. There are two or three more simultaneous double dislocations reported, but only one side was operated.

(To be continued.)

FIVE CASES OF SARCOMA OF THE HEAD AND NECK.

Presented to the Section on Stomatology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1–4, 1897.

BY VIDA A. LATHAM, M.D., D.D.S., F.R.M.S.
CHICAGO, ILL.

Many times it falls to the lot of some practitioners to see in dental surgery cases of mistaken diagnosis which become interesting studies. The question may be asked, "is the mistake altogether the fault of the graduate in dentistry or due to insufficient opportunities?" In looking back we find the training of a dental student decidedly deficient in many branches, just as is true of the medical man. Take for example the subject of oral surgery. The general type of teacher is often the instructor or assistant to the professor of surgery in the medical department (if the institution belongs to a university), a man who has seldom done anything beyond the more common minor operations, who knows little or nothing of the needs of the dental surgeon, and who often regards the dentist as not needing to know much beyond a few minor surgical subjects, such as wounds, fractures and dislocations. Indeed, he often looks down upon the profession, regarding it as nothing more than a mechanical business. I have often heard the criticism made by the surgeons, "Of what use is an oral surgeon? No man who knows his profession would care to be so narrow. In fact it is useless to urge the need of such a specialty at the present time."

Plastic surgery of any kind requires considerable thought and skill to prevent serious deformities, and particularly is this so on the face, where diseased conditions usually demand severe operations, involving considerable areas and dangerous localities. An oral surgeon must be a broad-minded conscientious man, a profound and able diagnostician, and a graduate in medicine as well as in dentistry, for it is only by a combined knowledge that many of these cases can be treated successfully. It is men such as these who should be encouraged in their work, and asked to teach or operate in our dental colleges. Think for a moment how few are the colleges that possess such a chair or teacher! To Philadelphia belongs the honor of showing how much good work was done by our revered and kindly teacher, the late Professor James E. Garrettson. Only a year or so before his death, when visiting the city, did the Doctor remark to me, "You little know the danger which arises from the indifferent training that is given in this line of work, and I do sincerely hope that before many years are gone the dental profession will demand the increased teaching of the subject, together with pathology and histology." It is some pleasure to see that the work of his late assistant is bearing out some of the Doctor's ideas, and it is to be hoped that the profession will in every way encourage such scientific work. I have reference to Dr. M. H. Cryer, whose studies in dental anatomy and on the maxillary bones are certainly of great anatomic and surgical value.

Let us recall the number of times we have casually noticed growths in the mouth and its adjacent parts. They may have appeared small and perfectly harmless, and we parhaps have thought it unnecessary to caution the patient to avoid all dangers from uncleanliness and irritation from rough stoppings or badly fitting plates, and in a short time have heard that the patient was suffering from a "tumor." I have seen and heard of the experiences often enough to have a vivid impression. There is a fault in our schools which is the cause of many such errors of judgment. The student is taught prophylaxis, in the abstract,

FIG. 1.—Epithelium, normal; early round-celled infiltration just showing in submucous tissue. (From myeloid of jaw.)

but no theoretical teaching can impress the learner so forcibly as even one practical illustration. The feeling of danger or seeming hopelessness with which an advanced sarcoma or carcinoma of the maxillæ or face is met in the clinic, will not require emphasis in the student's mind as to prevention or early recognition. Every practitioner or dentistry at some time sees cases of just this nature, perhaps when the disease is in its earliest form. If he is able to recognize it and sound a note of warning, even though he may refer the case to a surgeon or specialist he has done a great favor to the patient.

Case 1.—Myeloid sarcoma of the jaw.—Not long ago I saw a case which had been sent to a dentist for advice regarding a right superior third molar that was troublesome. The patient was told to have the tooth removed, "as the wisdom teeth were of no value," and this was done. But there was no advice nor suggestion of anything suspicious about the thickening of the gum around the outer side of the tooth. After a few months the patient became a medical student, and as the "socket" showed some irritability, a junoir teacher and dentist in the University Dental School was consulted. He pronounced the growth nothing but "thickened gum," and it was snipped off and thrown into the cuspidor, and the place touched with a styptic and counter irritant. In a little while it was thought

to be recurring, but the dentist said, "No, it is all right," and as he held a place in operative dentistry, and was quizmaster on the subject, the matter dropped. Only a few months later the patient transferred to a different school and heard a lecture on the subject, the importance of which created a feeling of uneasiness in her mind. At this time the student consulted me for examination and advice. The growth was small and seemingly fibroid in character, but the recurrence was suspicious and I asked permission to watch the case for a short time. Finding that it grew larger, I advised immediate and thorough removal, as I feared a sarcomatous epulis. After a little persuasion, the patient consented to the removal of a small piece of tissue for examination, and I herewith present two photographs chosen from a number of slides made from it. The first (Fig. 1) shows a rare section to all appearance, normal glandular structure and evidently the gland of Serres from the buccal cervical portion of the gum. Other slides from near this showed the ordinary histologic structure of the gum. The opposite end of the tissue from the neighborhood of the periosteal surface shows the early but rapidly growing and malignant nature of the tissue (Figs. 2 and 3) a typical myeloid or giant-celled sarcoma. In consequence of this examination, the patient, who knew something of the danger of such a growth, was eager for a thorough, radical operation, which was done by a consulting oral surgeon. At the present time, after the lapse of eighteen months, there has been no recurrence.

FIG. 2.—Gland of Serres (*a*) in a case of myeloid sarcoma of the right superior mandible.

The great danger in this case lay in the fact that the growth first appeared behind and on the buccal surface of the gum near the third molar, and its easy course of progression would have been up the palatal process along the maxillary tuberosity and posterior palatine canal, so invading the antrum and palato-glossal folds.

It is generally believed that myeloid sarcomata are common in the maxillæ, though Bland Sutton says they are rare, and as a rule arise in connection with the nasal process. In the maxilla or mandible they arise from the body of the bone. Most text-books imply that these myeloid growths are fairly frequent in the alveolar borders of the jaws; but this idea is due to the fact that we know very little regarding their origin in connection with developing teeth.

In regard to the classification of myeloid sarcomata, or as Mr. Bland Sutton calls them "myelomata," there has been some recent discussion (*Edinburgh Medical Journal*, February, 1897, illustrated). Sutton thinks these growths have been too long confounded with the sarcomata, and agrees with Butlin and Colby in an article published in St. Bartholomew's Hospital Reports for 1895 on "Sarcoma of the Femur and Tibia." "If they are sarcomata, they differ from other forms in a manner which the modification of their structure does not suffice to explain." Sutton points out that they are only found growing from those parts of bones where red marrow exists, and that they grow from it, just as innocent cartilaginous tumors spring from the epiphysial plate. They grow, in fact, from one of the normal constituents of the bone. His important conclusion, that they differ histologically, pathologically and clinically from sarcomata, crystallizes the view which must have existed, though perhaps in a somewhat dormant condition, in the minds of many surgeons and pathologists.

There are two schools of practitioners, the conservative and the radical, and I am well aware that both make mistakes. But knowing how patients are liable to postpone operative measures until too late, I take the position that it is best to follow the broad general rule, that "wherever an abnormal amount of tissue appears it should be thoroughly examined and if even suspicious, should be removed as soon as possible," whether it prove to be benign or malignant, for the following reasons:

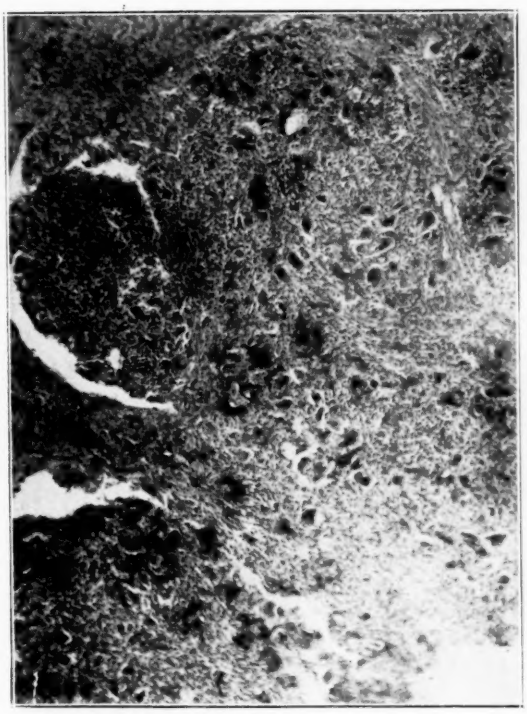


FIG. 3.—Gland of Serres (*b*) from right superior maxilla.

1. The excessive growth injures the normal tissues by abstraction of nourishment, causing atrophy in some other part.

2. Atrophy produces interference with function of injured part.

3. The irritation caused by the foreign growth is apt to excite inflammation in adjacent structures, the process stimulating the cells to a hyperplasia, which

produces at least a deformity, or which may later become malignant.

4. There is danger that patients will avoid operation until it is impossible to give relief, as active growth in oral neoplasms is the rule. The location of these tumors is dangerous on account of the great blood supply, cavity formation occurring in the bones of the upper extremity, and because extension is easy to vital centers, as the brain and the eye.

5. There is considerable danger of sepsis from infection by micro-organisms of the mouth.

Case 2.—Small spindle celled sarcoma of the palate (Figs. 4 and 5).—According to William Anderson in Christopher Heath's "Dictionary of Surgery," sarcoma of the palate is rare, and when it does occur is usually of the round-celled variety, but one instance reported by him being found to consist of fusiform or myeloid cells. In looking over the literature of the subject I find few reports of primary tumors of the palate are recorded. I reported a few cases in the "World's Columbian Dental Congress Proceedings," and wish now to place on record a recent case of small spindle-celled sarcoma of the palate.

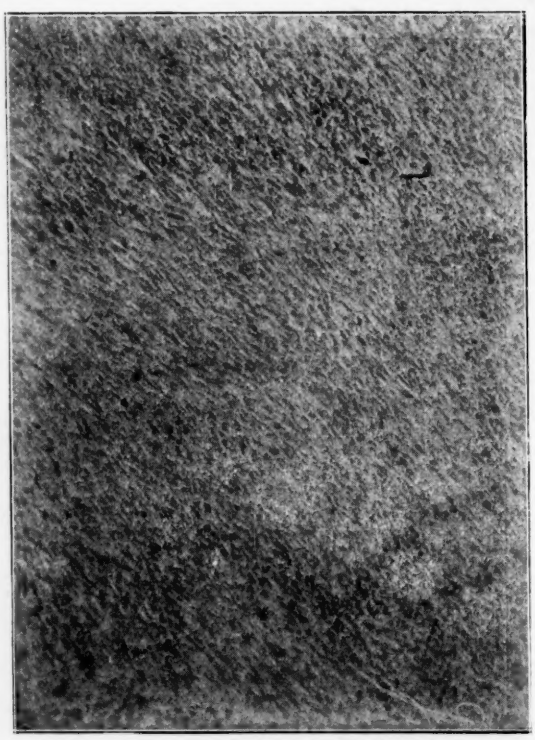


FIG. 4.—Small spindle-celled sarcoma. (Palate.)

The patient, a man aged 33 years, had been in perfect health up to six months previous to the time he came under my observation. What first attracted the patient's attention was a thickening on the left lingual surface of the palate. At first he was but little concerned, thinking it only a local irritation; but as it slowly increased in size he consulted a dentist, who told him it was a chronic inflammatory growth, and possibly due to his smoking a pipe. This habit was discontinued and the swelling treated by counter-irritation, which gave no relief. By this time the place was a source of annoyance, as the patient could not keep his tongue off it and he determined to have it removed by his family physician. The latter found that the growth extended from the first molar to the soft palate within half an inch of the uvula, and becoming suspicious of its nature he decided to be prepared for a radical operation and gained the patient's consent to do what he deemed best. The growth was periosteal in origin and was thoroughly extirpated, the teeth being extracted on that side and the alveolar border curetted, removing all tissue that looked even suspicious. So far there has been no recurrence.

The differential diagnosis between palatal abscess and sarcoma shows the following points:

Sarcoma springing from the periosteum of the hard palate appears as a soft, semi-elastic, more or less rapidly-growing tumor affecting the roof of the mouth. A palatal abscess originating from any of the upper teeth and burrowing backward beneath the bone and periosteum or in the soft tissues forming the roof of the mouth gives rise to pain, and inflammation attends its development; it extends more rapidly and gives an elastic feeling of fluctuation. There is the evidence of a carious tooth, and in chronic cases the diagnosis can be positively made by exploratory puncture.

Sarcoma of cheek (Figs. 6 and 7).—The patient, a healthy-looking woman aged 42, had detected, about three years before I saw her, a small, hard but freely movable lump behind her left ear, between the mastoid process and lobule. It increased slowly and painlessly until about six months before I saw her, when it began to grow rapidly and to cause considerable distress. The tumor was of a reddish-blue color, the size of a small tomato, which it resembled in gross appearance. The overlying skin was extremely thin, almost translucent, and apparently incorporated with the growth, which was only slightly movable on the subjacent periosteum. It threw the ear forward and from its lower border a hard ridge passed down behind the angle of the jaw and extended up in front of the ear nearly to the level of the second molar tooth. The operation consisted of a circular and a longitudinal incision, part of the ear lobe being carried away with the tumor, which was adherent to the periosteum and to the sterno-mastoid muscle, part of the latter being necessarily removed. The

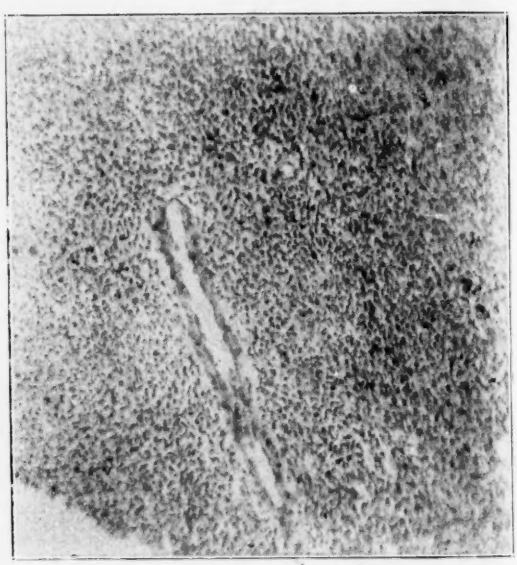


FIG. 5.—Blood vessels with sarcoma cells in wall.

ridge-like process, a large portion of the adjacent parotid gland and some cervical lymphatic glands from the carotid sheath were also removed. The mastoid area from which the tumor was excised was treated with the thermo-cautery. Much misgiving was entertained as to the thoroughness of the removal, as when the periosteum is considerably affected, the bone is almost always involved, and it was impossible to remove any more of the mastoid process and squamous bone. After some months the disease recurred in some granulations which crept over the area of operation, and in spite of curetting, cautery, etc., the growth extended rapidly. The patient succumbed from pain and an exhausting discharge some nine months later, death occurring about four years from the beginning of the disease.

The origin of this tumor was doubtful, but I believe it to be in the lymphatic gland found on the mastoid process behind the ear. The patient had been subject to abscesses from badly decaying teeth, and had received treatment and extraction. She gave a history of repeated attacks of lymphangitis, in all probability septic and had complained to her dentist and physician regarding the stiffness of the jaw and neuralgic pain in the left ear. She was an intelligent woman and insisted that

"the doctors said the swelling (which was small when seen by them) was only from her bad teeth," and would get well when her mouth was better. Removal of the diseased roots had at first checked the sepsis from which she was suffering, but the pain about the swelling continued and her physician referred her to me, evidently thinking the neuralgia of dental origin.

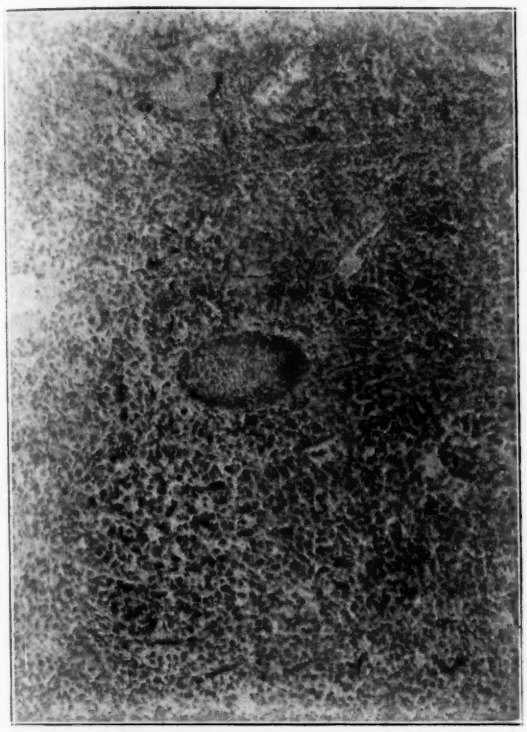


FIG. 6.—Sarcoma of cheek.

FIG. 7.—Sarcoma of cheek.

It is quite possible that this case might have resulted more successfully had it received early diagnosis and prompt treatment by operation.

The photographs show the structure of a mixed sarcoma, resembling alveolar, in parts showing masses of sebaceous epithelium and sweat glands and some hair follicles, with the large sarcoma cells grouped in masses. In parts a fibrous matrix runs among the cells, giving the appearance of alveoli.

Sarcoma of antrum (Fig. 8).—The patient, a well-built boy, 15 years of age, had complained of constant pain in the left upper first molar, which was treated. In about three weeks his cheek began to swell and on returning to the dentist the boy was told that the swelling was an abscess. Free incisions were made and no pus found. As he got no better and the pain continued the patient left his dentist, going to one of the well-known advertising houses, and there was told to have the

FIG. 8.—Sarcoma of antrum.

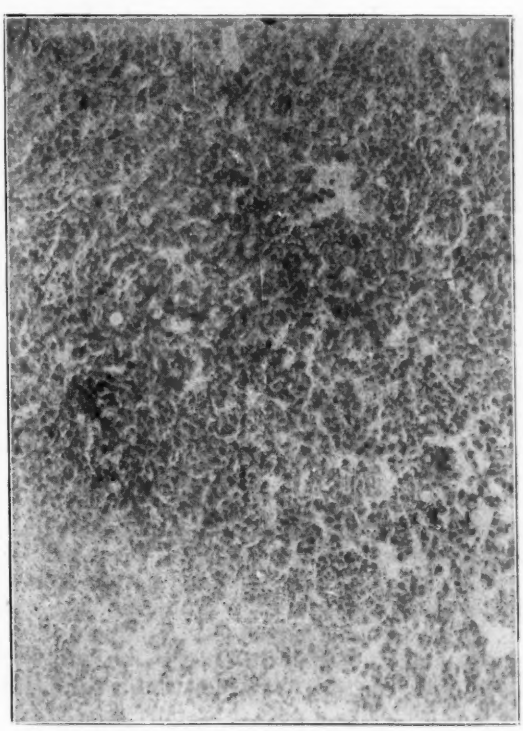


FIG. 9.—Melanotic sarcoma. (Neck.)

tooth extracted. This was done, and after the somewhat profuse hemorrhage which followed the pain was better. The swelling, however, did not disappear, and I saw the case upon recommendation of his family physician. The unilateral

bulging of the antrum and upward displacement of the eye-the slight amount of pain, together with the history and previous treatment led to a diagnosis of sarcoma of rapid growth. I gave the patient an unfavorable prognosis and urged a speedy removal of the upper jaw, which was done. When the soft parts were laid back the disease was found to be very extensive, requiring removal of the whole superior maxilla and malar bones, the zygoma and part of the temporal and masseter muscles. Hemorrhage was very severe, but was controlled by iodoform packing and tincture benzoin comp. In spite of this bold and severe operation the disease recurred and the patient died from exhaustion.

The microscope showed the tumor to be a small round-celled sarcoma.

Melanotic sarcoma of the neck (Fig. 9).—This specimen is from the neck of a woman 29 years old. It was situated at the angle of the jaw on the right side. The history is, briefly, that she had a dark brown pigmented mole in the above location, which annoyed her so much that she frequently "picked" it. About one year ago the mole seemed to be growing larger, but the patient was not alarmed until four months ago, when it commenced to increase in size very rapidly, to look inflamed, and to cause much shooting pain. Upon advice, the patient had the growth removed, which was done through an elliptic incision on each side at least one inch distant from the periphery of the growth.

As is well-known, pathologists are undecided as to whether this is a sarcoma or a carcinoma, though undoubtedly we possess both varieties. Sections were made in celloidin, paraffin and by freezing, the two last-named giving the best results. The majority of the sections show the tissue cellular in type, of mixed sizes and shapes, some with and some without pigment granules in the protoplasm, separated from each other by a variable amount of intercellular substance showing in some places a distinct fibrillation. In some places the pigment cells seem to invade the epidermis, as though the epithelium might be implicated in the growth, which layer is in connection with the cellular elements, and then further gives way for the usual normal subcutaneous connective tissue layer. The epithelium is not seen to be taking part in any of the growth, but here and there masses of sebaceous epithelium can be seen. The chief peculiarity of the growth is its superficial location and extent in a lateral direction.

The origin of the pigment is indefinite, the origin from blood being affirmed by Dressler, Kolaczek and Rindfleisch, and denied by others. Pigmented sarcoma cells do not fibrillate, which fact explains the great malignancy of melanotic sarcoma. The fibroplastic part of such growths is always made up of spindle cells which are not pigmented (Senn).

808 Morse Avenue.

SOME LITTLE POINTS IN SURGERY.

Read by request at the Twenty-sixth Annual meeting of the Southwestern Kentucky Medical Association, May 11 and 12, 1897, at Paducah, Ky.

BY E. B. SMITH, M.D.

DETROIT, MICH.

In preparing this paper I have endeavored to make use only of such points and suggestions as have come up before me in my every-day practice, and which I believe, are of daily thought and study to every surgeon who is actually engaged in relieving the suffering of humanity.

I am quite sure you will all agree with me that the little points in the practice of our profession are of pre-eminent importance. Of themselves, they are able to make or mar our success, according to our attention to or neglect of them.

In an injury to the head we must take into consideration every minute point, weigh each well and proceed as our best judgment dictates. If we suspect fracture of the skull we should examine the ears, and if a discharge is present, its nature should be noted, for on this—whether it be blood, the cerebro-spinal fluid or a mixture of them—will depend our diagnosis and prognosis to a large extent. The pharyngeal space and posterior nares should not be overlooked, and lastly, every surgeon should be conversant with the use of the ophthalmoscope and be able, roughly, to determine some of the more commonly occurring pathologic conditions of the fundus of the eye, such as choked disk, neuritis, hemorrhage, detachment of retina, and albuminuric retinitis, which conditions are liable to occur in cerebral apoplexy, meningitis, brain tumors, Bright's disease, and injuries to the head.

In all injuries about the body the positive, brilliant diagnosis is made by considering every little point; for example a man has been crushed between two heavy bodies and the head of the femur is thought to be involved. Everything that bears upon the question must be fully considered, and it will be found that the simple, plain little points will reveal the certain diagnosis. The position of the limb here, as in almost all fractures of the long bones, will indicate to the experienced surgeon, almost at a glance, just what the condition is. Yet it is well to fully corroborate the testimony of the eyesight with every means of evidence available. The result will then be safe.

In compound fractures a little point of importance is to make the right traction so as to fully reduce the fracture and yet produce as little secondary injury to the parts as possible, especially to the nerves and blood vessels. More than once I have hooked my little finger, rendered as thoroughly aseptic as possible, between the bones and soft tissues and used just enough traction to push the fractured end of the bone back into its original position. Again, it is a nice little point to know just how to cleanse and remove all débris from the wound. I always carry, both in my dressing and my surgical case proper, some fine rubber tubing. This can be made quite aseptic in a few minutes and an extemporaneous syphon made in as short a time. A sterile, neutral, alkalin or antiseptic solution can be prepared while the injured parts are being uncovered. I then apply to the wound my rubber tubing syphon, in one end of which a glass nozzle is fitted, in such a way that the inflow of water will drive out and not wash in the foreign material. In applying dressings it is a nice little point which comes only with practice to know just how snugly to draw them so as not only to hold the parts in position but give the patient perfect rest without pain. When the injury to the limb is below the middle third it is a good plan to pad the distal end well and begin the application of the bandage close to the extremity, bandaging somewhat firmly here, and as the bandage goes nearer and nearer to the wound making it slacker and slacker until the injured tissue is reached, when the bandage ought to be drawn only snug enough to simply hold the dressings firmly in place. I think the tendency is to apply too much dressing to stumps after amputations, and to extensive injury of soft tissues. I apply just as little as is consistent with the requirements of the case. When the patient is at home, with good atmosphere and sanitary surroundings, I am still more careful to apply as little dressing as possible.

In compound comminuted fractures the question is how many of the small fragments of bone to remove and how many or what to leave. It is good practice after having thoroughly cleansed the site of injury, to leave the cancellous pieces near uninjured cancellous bone, and to leave in place all peripheral portions which are attached to the periosteum, and thus if possible make the contour of the bone almost if not quite normal. One of the recognized procedures of modern surgery, when we have an extensive wound, be it operative or from accident, is to cleanse it with some substance that is as non-irritating as possible. The strong irritative solution of mercury bichlorid of the earlier practice in aseptic and antiseptic surgery is practically a thing of the past. For a thoroughly reliable antiseptic solution for irrigating wounds which are infected, I am in the habit of using 2 c.c. each of carbolic acid and tincture of iodin to a liter of sterilized water; I then rewash with sterilized water. Simple sterilized water, or sterilized normal saline solution makes an ideal cleansing fluid when we have no reason to suspect infection. For a dry dressing I use sodium chlorid and starch, in proportion of 1 to 4.

When called upon to go hastily to some remote house where an operation of some kind is found imperative, alone and partially unprepared, I usually proceed in the following manner: While my instruments are boiling in a soda solution on the kitchen stove, I prepare the patient. I then appoint three nurses if they can be obtained in the house or from the neighbors. One I assign to the anesthetic; the other two I make head-nurse and assistant, respectively. I then clean my hands, nails and arms, and instruct both nurses to do the same in every detail. I then say to them, "Do not touch anything with your hands or arms except as I direct." I then prepare my needles, dressings and instruments, placing all in a place convenient for picking up as needed; the assistant nurse handles the boxes, the jars and the pans only; the head-nurse may, if necessary, thread needles, cut gauze into convenient strips for sponges and assist me generally; I then put the patient under chloroform, give the inhaler to the nurse I have appointed for this duty, sterilize my hands again and then proceed with the operation.

In repairing the soft tissues, like structure should be brought into apposition with like, severed tendon to tendon, nerve end to nerve end, etc. To do this thoroughly, neatly and well, without too great tension, requires not only a delicate touch, but a firm, steady hand which experience alone will bring. To my young friends who are just entering the field of surgery I would say, "Perform operations on the cadaver, on the dog, the rabbit, anything you can get hold of. Do all kinds of work again and again until you feel that you are master of the situation, then when called upon to care for some unfortunate human being, you can enter the room of the injured or afflicted one with a confidence born of the certainty of success."

Do not use too heavy ligatures nor too large sutures. I wish to urge this very strongly. In my opinion the experienced surgeon can ligate vessels with a comparatively fine silk thread without running the slightest risk of cutting through the vessel; then with a well and neatly tied knot he can cut the ends quite close; and so too in tying off stumps. The point I wish to bring out is that the smaller the foreign substance which we leave in a wound or cavity the less liable we are to have trouble and irritation. In suturing an external wound it is well to remember that all knots should be tied upon one side or other of the incision. If a knot happens to be tied directly over the incision it can as a rule be easily slipped over to one side. The reasons for this arrangement are two. If the knot is left immediately over the incision or cut surface, the ends may dip down between the edges and so prevent primary union. Again, when we come to remove the stitch we can catch the knot with a pair of fine toothed forceps and, with blunt pointed scissors, depress the integument at the stitch hole sufficiently to cut off the suture at some distance below the surface; then making traction on the knot in a direction away from the newly united edges the shortest possible amount of thread is drawn through, saving the patient pain and preventing infection by carrying some of the external part of the suture through the tissue. When placing stitches in a wound or incised surface, great care should be taken not to injure any deep lying nerves or vessels or any organ adjacent thereto by passing the needle too wide or too deep.

When proceeding with an operation, and this applies especially where the blood vessels are numerous and tortuous, for instance about the face, neck, chest and extremities, it is well to have a qualified assistant to compress the important vessels leading to the field of operation. This materially aids in shortening the operation and helps the operator do neater and better work. All vessels from which hemorrhage has occurred should be secured before entering any cavity beyond. I emphasize this point by stating a case of my own, that of a boy suffering from diphtheritic obstruction of the larynx. This case I ultimately lost with a septic pneumonia when a little more care in securing the vessels might possibly have saved his life. The abdominal surgeon realizes the importance of securing all vessels before he enters the peritoneal cavity. The genito-urinary surgeon is careful, when passing through the perineum, to check all bleeding points with ligature, or catch forceps, or to at least thoroughly pack the site of the wound so as to completely control all hemorrhage in this region before entering the bladder. In the operation of perineal lithotomy there is a little point that is well to bear in mind, viz., when the sound is in the bladder, and the incision into the bladder has been completed, it will be very embarrassing to the surgeon to accidentally or intentionally remove both sound and forceps before the calculus has been grasped. It is a very difficult thing to reintroduce them. I would advocate more general blood letting for cerebral apoplexy; for mastoiditis early incision and exploration if necessary; for cellulitis early and multiple incisions. After operations give as little anodyne as possible, none at all is better. Here codein is preferable to morphin, on account of its less depressing, less constipating after-effects. If morphin must be given it is preferable to use the hypodermic syringe. For the pain after an operation involving the brain, give bromids. For abdominal pain after laparotomy give teaspoonful doses of *hot* water and apply hot water to the abdomen, where it can be done without infecting or wetting the wound. Be careful to prevent vomiting after abdominal incision. This may be done by cocain spray to the nares, by laying a cloth wet with vinegar over the face, or by counter irritation over epigastric regions, etc. The pain, after bladder operations, may

be relieved by rectal injections of hot water, or when severe, by a suppository of opium; the same for pain following rectal operations, when not extensive. For preventing the extreme thirst following abdominal operations, it is a good plan three or four days before the operation to commence having the patient drink large quantities of water. In this way you will get rid of much of the thirst which is so intolerable after an extensive operation. There are points all along the road of surgery. Last, but not least, let me try to make a little point on thorough preparation, even in the smallest operations. When opening the smallest abscess, when removing a foreign body however minute, when introducing an instrument of any kind into a wound or into any of the natural cavities or orifices of the body, remember in all cases, to have your hands and instruments surgically clean; look well to the field of operation, see that it is as thoroughly prepared as though you were going to do a capital operation, for more than once you and I have seen disastrous results from not being careful enough.

A MODIFICATION OF THE MURPHY BUTTON.

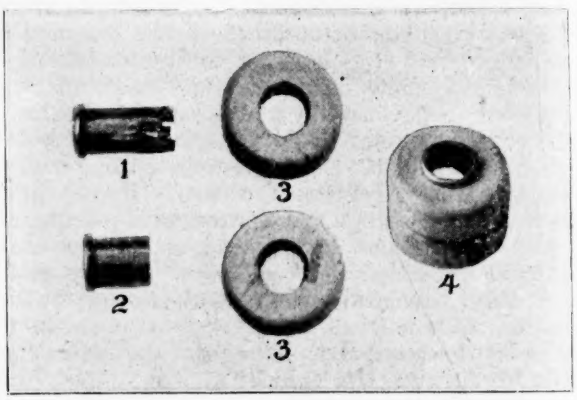
BY ARTHUR E. HERTZLER, A.M., M.D.
HALSTEAD, KANSAS.

The time required to suture the ends of the intestines, and the necessity of pushing in the suture threads after tying the plates, and the uncertainty of an adequate opening, in the use of the decalcified bone plates of Professor Senn; the large size of the body to be extruded, the danger of lodgment and the occasional undue pressure of the spring, in the Murphy button; the time required to make a union by the Czerny-Lembert suture, seem a sufficient apology for continued investigation in the perfecting of a method for uniting the various parts of a digestive tract in case of disease or injury. That many advances along this line have been made is evident, and it is equally obvious that there is still room for improvement. It is with the hope of contributing to this advancement that this modification of existing methods is offered.

The present combination is the result of an attempt to unite the decalcified plates of Senn without the use of sutures. After using various devices, an exploded pistol shell was used. Little strips, two millimeters wide, were cut down the sides and bent outward to form hooks to catch in threads in the female part of the button, as in the Murphy button. The regular lock of the Murphy button was also used, but this locks only about every one-thirty-fifth of an inch, which was not sufficient. I used thirty-two caliber for cats, thirty-eight for small dogs and forty-five caliber for large dogs, in lateral anastomoses and colectomies. Four catches, instead of two, were used on the male portion of the lock, the two opposite acting together. This gives a firm lock and at the same time allows it to fasten every one-seventieth of an inch with a thread of one-thirty-fifth of an inch in the female portion of the lock. This allows accurate coaptation and does away with the necessity of a spring plate, as used in the Murphy button. At first a spring was used. A coil spring was placed between the head of the tube and a shoulder in the disc made to receive it. I found, however, that this is entirely unnecessary, as the slight elasticity of the disc is all that is needed.

Plates of fresh bone of from six to seven millimeters thick are cut into circles a little less in diameter than the gut it is intended to unite. Holes are now drilled just large enough to admit the central tubes. These are made larger and of lighter weight than the central tubes of the Murphy button of the same diameter. The inner side is now reamed out about the central opening for the puckered part of the gut to lie in after the draw suture has been tightened. All edges are now rounded, the discs decalcified and dried between filter paper, under pressure, then hardened in alcohol.

I have made more than a hundred experiments to determine the length of time necessary to decalcify, but the results are still not entirely constant. One difficulty that can never be entirely overcome is the fact that the various conditions of the digestive tract affects the rapidity with which the bone will be absorbed. Still, the results may be stated in a general way. For use in the intestines the discs should be decalcified for four days in a 10 per cent. solution of HCl of twenty-five times the volume of the discs, and changed but once at the end of forty-eight hours. After decalcification is complete the discs should be dried for twenty-four to forty-eight hours between several layers of filter paper, under pressure, and then hardened in alcohol of ascending strength, as in



1. Male portion, showing four catches which are adjusted to work in pairs. 2. Female portion, containing thirty-six threads to the inch on its inner surface. 3. The two decalcified plates separate from the metallic portion. 4. The button closed, showing how the central tubes slip into the plates and then shove together, like the Murphy button.

hardening tissue for the microtome. After hardening they may be kept in alcohol indefinitely. They have no tendency to warp, and are sufficiently firm for the purpose. A disc thus prepared will require about from 3 to 5 days time for absorption enough to take place to release the central tube. Discs intended for use in the stomach should be decalcified for twenty-four to thirty-six hours only, in fluid of the above strength, without change, and then dried and hardened as above described. Such a disc will absorb in from seventy-two to eighty hours. If the animal is given food absorption is hastened, while opium retards the process.

I have tried ivory and, while it is more easily worked, the time required for its absorption is not so constant, and is on the whole less desirable than bone.

Besides the usual rules observed in this class of operations the following points are suggested:

1. In end to end anastomosis the draw stitches should be regularly placed and should not include too much tissue, two millimeters is enough.

2. In gastro-enterostomy a circular patch of tissue,

the size of the central tube, should be cut out of the stomach and intestinal walls. An opening of this size will stretch over the disc and give a snug fit without wrinkles, making a most perfect coaptation.

3. In uniting the two parts of the button, they must be firmly pressed together, tighter than a Lembert suture would be drawn. At the same time the tissue must not be unduly crushed. This is the most particular part of the operation, and if rightly done removes the necessity of a spring, the slight elasticity of the discs, as before stated, being all that is required.

By this method the following points of merit are believed to be obtained in the highest degree:

1. The junction is strong and food may be given at once if this seems necessary.

2. No foreign body remains after union is complete.

3. The small size of the body to be extruded. This is an important point should there be a constriction below.

4. In gastro-enterostomy the button can not become lodged in the stomach and cause trouble. In the stomach the disc becomes digested off first, forcing the remainder into the intestine. Even should the disc, in the intestine, be the first to become absorbed, after the remaining disc is digested, the central tube will pass out readily.

5. It can be as quickly applied as any method known.

6. There are no sharp points in contact with the intestinal wall.

7. The opening is as large, and has as little tendency to contract, as that obtained by any method heretofore employed.

This method has never been used on the human subject, but judging from results obtained upon animals. it seems to leave but little to be desired.

SOCIETY PROCEEDINGS.

American Surgical Association.

Thirty-ninth Annual Meeting, held at New Orleans, April 19, 20 and 21, 1898.

FIRST DAY—MORNING SESSION.

This session was devoted to an address of welcome by Dr. J. HOLT of New Orleans, announcements of various committees and the reading of the President's Address on

THE FUTURE OF THE ASSOCIATION,

by Dr. T. F. PREWITT of St. Louis.

After referring at some length to the formation and organization of the society, he referred briefly to some of the men who had preceded him in the office of president and particularly to the founders of the Association. He then dwelt upon the character and standing of the present and future members and particularly in reference to their standing and advances in surgery. In commenting upon the achievements of the nineteenth century he referred to the progress of railroads, steamboats, telegraph, telephone, electric light, photography, to say nothing of the rapid strides in surgery, and urged the earnest and cordial co-operation of all distinguished surgical practitioners, writers and teachers in enabling the Association to occupy the proud position its founders destined for it.

FIRST DAY—AFTERNOON SESSION.

Dr. CHARLES A. POWERS of Denver read a paper entitled

THE QUESTION OF OPERATIVE INTERFERENCE IN RECENT SIMPLE FRACTURES OF THE PATELLA.

The author opened his paper by quoting extracts on the subject of writing by Dennis, Bull, Czerny and Myles and then took up the tests, first structural and second functional, for fracture of the patella. In referring to the mechanism he stated that the majority of his accidents were due to muscular action, the patient endeavoring to save himself from falling, the quadriceps femoris being strongly contracted at the time. In taking up the question of the pathology it was shown that in the fracture due to muscular action there are but two fragments, of which the upper is generally the larger, while the fractured surfaces are as a rule irregular and the line of fractures may be transverse or oblique. In commenting upon the conditions tending to cause imperfect union and the obstacles to union, the author enumerates them as follows: 1. Separation of fragments, due to: *a*. Retraction of the upper fragment from contraction of the quadriceps femoris and a slight drawing down of the lower fragment through a shortening of the ligamentum patellæ. *b*. Effused blood. 2. Tilting of the fragments (this may be present to a marked degree and unrecognizable without operation). 3. Rupture of the tendinous expansion of the vasti and of the lateral portions of the capsule of the joint. 4. Prolapse of the pre-patellar tissues into the breach. 5. Atrophy of the quadriceps femoris due to: *a*. Disuse. *b*. Arthritis. *c*. Marked contusion of the muscles. *d*. Blood extravasated from the joint through the rent in the upper part of the capsule. 6. Arthritis of the knee-joint, this possibly resulting in, 7, adhesion of the patella. Further, though of but little value, may be added, 8, natural poverty of the blood supplied to the bone (rendered negative by the fact that vertical fractures healed satisfactorily), and 9, exceptional tendency to osteitis, seen in fat people, in the aged and in certain conditions of the blood. As to the non-operative management of these cases the speaker considered that no better evidence of the unsatisfactory results attending treatment of fractured patella by mechanical means need be adduced than the great variety of plans and devices which have been set forth from time to time. A few of these devices were referred to, among others the use of properly applied bandages or strips of plaster followed by a splint or plaster-of-Paris dressing, Malgaigne's hooks and the so-called "Dutch" method or massage.

Dr. Powers then quoted at great length from a very large number of personal letters from prominent surgeons all over the United States, each setting forth his opinion and preference as to the treatment of these cases. Elaborate statistics follow giving the results of various kinds of treatment by many different surgeons and showing comparative mortalities from the different methods. The subject was then taken up very fully under the headings of: "dangerous," "limitations attending the operation; selection of cases," "time of operation," "operative procedures" and "immediate and remote results of operative management and comparison of these results with those attained without operation."

Dr. J. D. BRYANT of New York, in discussing this paper, referred to the work of the late Prof. Frank H. Hamilton on this subject and, in computing the comparative worth of the different methods, called attention to the importance of the following determining factors: 1, the degree of physical infliction; 2, the duration of confinement in bed as bearing respectively on the comfort, health and business demands of the patient; 3, the character and importance of inherent and acquired complications of respective methods of operation; and 4, the final burdens imposed by the sequels of different plans of cures. The Doctor then discussed these four points at considerable length and again quoted to some extent from the writings of Hamilton. He stated that he was not inclined to the practice of suture in the patella except in instances emphasized by a special indication for that step, but he considered it a justifiable measure in selected cases.

The technic of operations which he at present employs consists: 1, in making a short vertical incision; 2, removing the blood clots from the fractured borders of the bone along with the interposed fibrous tissue that is sometimes present, and cleansing the joint cavity; 3, draining the joint with a few strands of silkworm gut at the outer side; 4, uniting the fracture with a small wire so placed as to cause retention, and proper apposition of the fragments; and 5, closure of the wound, antiseptic dressing and fixation in bed for two weeks, followed by plaster-of-Paris spica and out of bed on crutches.

In conclusion, he called attention to a mechanical method of treatment wholly or in part employed by himself in the treatment of fifteen cases of simple fracture during the last twenty years, for which he claimed: 1, greater comfort and efficiency; 2, less danger and only a week's confinement to bed; and 3, results equal to the best of other mechanical methods. Drawings illustrating this method were shown.

Dr. M. H. RICHARDSON of Boston referred to the importance of good surroundings, good health of the patient, surgical experience and experience in aseptic technic in the treatment of these cases. In his opinion there was no need to open a joint if one could get complete control of extension, and where this is lost owing to extensive laceration, he thought wiring should be seriously considered. He was also of the opinion that the time of confinement in ordinary cases should be six

months. He defined aseptic healing as being an unsuccessful infection and believed that a wound of the knee-joint was especially liable to infection. The wiring of the patella he thought should be considered when the failure of conservative methods had been demonstrated.

Dr. JAMES E. MOORE of Minneapolis, felt that Dr. Powers' paper represented the opinion of American surgeons of the present day and commented on such a low mortality as less than 1 per cent., believing it to be better than the best results reported by using non-operative means. He laid great stress upon the importance of asepsis, proper environment and surgical experience in performing operations about the knee joint and believed that the passage of ligaments around the patella would be more fatal than an open arthrotomy. He was in favor of immediate operation and considered that approximation of the fragments would thus be rendered easier. Referring to the matter of technic, he believes the best results will be gotten by temporary drainage so as to avoid over-distension and interference with circulation. He does not feel, however, as mentioned by Dr. Richardson, that the amount or separation is any index as to the future usefulness of the limb.

Dr. W. S. HALSTED of Baltimore was not in favor of draining in every case, but thought it well to do so when the tissues about the wound were not themselves in shape to take care of the micro-organismal infection. He was in favor of immediately opening the joints and thoroughly washing out, and preferred to at all times wear rubber gloves during these operations.

Dr. POWERS, in closing the discussion, stated that in the body of his paper he had expressed the opinion that if a surgeon felt competent to undertake one of these operations he should feel equally safe in dispensing with drainage.

Dr. NICHOLAS SENN of Chicago, read a paper entitled

THE ETIOLOGY AND CLASSIFICATION OF CYSTITIS.

After dwelling at great length on the anatomico-physiologic construction of the bladder, and referring to its lack of absorptive power, the author took up the question of the etiology, which he divided into, under the head of predisposing causes, retention of urine, unrest of the bladder, abnormal urine, tumors, calculus and foreign bodies, pressure, exposure to cold, venous stasis and trauma. Under the heading of exciting causes, he mentioned first infection to the urethra, infection by the urine, infection from adjacent organs, infection from the blood, etc. He then took up the subject of classification, and after mentioning Guyon's classification, divided the subject into: 1, the anatomic; 2, the pathologic; 3, the clinical; and 4, the bacteriologic. He then subdivided the anatomic into pericystitis, paracystitis, interstitial cystitis and cystitis; the pathologic into catarrhal cystitis, suppurative cystitis, ulcerative cystitis, exudative cystitis and exfoliative cystitis; the clinical into acute cystitis, chronic cystitis, and the bacteriologic into staphylococcus infection, streptococcus infection, bacillus coli communis infection, saprophytic infection, diplobacillus infection, streptococcus erysipelatosus infection, gonococcus infection and tubercular infection. Each division and subdivision was discussed at great length and the details of many series of experiments were outlined in full.

Dr. JOHN PARMENTER of Buffalo, N. Y., in discussing this paper referred to the remark that the bladder did not possess any absorptive power and mentioned his experiment of injecting into the bladders of twelve healthy, eight drops of sulphuric ether in a drachm of water and detecting the odor of ether on the breath within a minute. He also pleaded for greater care in the disinfection of the urethra before sounding and considered that the infection was usually due to a combination of traumatism and micro-organism.

Dr. W. S. HALSTED of Baltimore, referred to the work of Dr. Young, one of his assistants, in this connection, and stated that Dr. Young had found the gonococcus was sometimes present in acid urine, sometimes in neutral and once in alkalin.

Dr. ALEXANDER of New York, took exception to Dr. Senn's statement that the mucous membrane of the bladder was devoid of glands, and mentioned that lymph nodules were almost always present in the bladder and the ureters, giving rise at times to a peculiar inflammation which he had termed nodular cystitis. He also referred to some recent investigations tending to prove that in a proportion of normal bladders in which the middle portion of the prostate was enlarged, accessory prostatic glands were found around the trigone of the bladder. He believed that retention was responsible for most cases of inflammation of the bladder and stated that an appreciable amount of residual urine is found in cases of moderate degree of stricture or a moderate prostatic congestion as a result of sexual hyperemia. Referring to the question of traumatism, he thought this was often due to destructive diseases brought about by the irregular catheterization of the patient, and mentioned that where a patient suffering with prostatic enlargement is catheterized with an absolutely and perfectly clean catheter, still infection will at times take place. He also explained that if a man is catheterized at nine o'clock in the morning, again at five or six in the afternoon and not again until noon the next day, trauma will be produced by over-extension permitting the more rapid occurrence of infection.

Dr. SENN closed the discussion by stating that he thought the appearance on the breath of the smell of ether so quickly in Dr. Parmenter's cases, was due rather to a process of diffusion than of absorption, as he believes the urethra and neck of the bladder possess absorptive power, but that the vesical mucous membrane proper did not.

SECOND DAY—MORNING SESSION.

Dr. W. S. HALSTED of Baltimore, read a paper entitled

OPERATIVE TREATMENT OF CARCINOMA OF THE BREAST.

After referring at great length to a large number of cases seen and operated upon, and giving the statistics of the results for the past nine years at the Johns Hopkins Hospital, he referred in detail to the undescribed, not infrequent, cancerous tumors of the breast, to the relative malignancy of the various breast cancers, to the frequency, significance and treatment of cancerous supra-clavicular glands, and then referred in some detail to the operations themselves as performed by himself and his assistant.

Dr. CHARLES B. NANCREDE of Ann Arbor, in discussing this paper said that he was struck by the large number of cases of cancer of the breast occurring under thirty years of age, and that he had a limited experience of between 200 and 300 cases. A girl in the early part of her 25th year, who unquestionably had the same tumor in her 19th year, was operated on this winter by him. He asked if any one's experience coincided with his as to the large number of cases that occurred before the age of 30 years.

Dr. ROSWELL PARK of Buffalo, inquired what Dr. Halsted's teaching was with regard to endothelioma.

Dr. M. H. RICHARDSON of Boston, referred to the work done by Dr. Halsted, and stated that he had observed many cases where there had been no infection of the axillary glands. In two cases he had made the diagnosis of a tumor merely upon the symptom of pain. He believed that there was usually early recurrence of cases in which the axillary glands were infected. In commenting on the value of gross appearances he referred to a case where the microscopic appearance did not at all agree with the diagnosis, although the clinical appearance proved its correctness. In his opinion three years was not enough to consider a cased cured, as he had seen recurrences in from seven to ten years.

Dr. J. D. BRYANT of New York, stated that he had found enlarged glands in the axilla in some cases where the increase in size was not sufficient to warrant the belief that the glands were infected, until a microscopic examination had been made. He commented on the fact that patients possessing a morbid growth not only very often kept this fact to themselves, but their physicians encourage them in so doing.

Dr. J. MCFADDEN GASTON of Atlanta, commented on the occasional disappearance spontaneously of carcinomatous formation and inquired if constitutional measures employed synchronously had been observed to have any effect.

Dr. ROSWELL PARK continued his discussion by stating that he had for several years been collecting data on the subject of the spontaneous disappearance of tumors and was anxious to get as much information on the matter as possible.

Dr. RUDOLPH MATAS of New Orleans, in discussing this paper, gave a lengthy synopsis of twenty-seven operative cases of malignant disease of the breast or its immediate vicinity, which had come to his notice between the years 1887 and 1898. There were no fatal cases from operative causes. Eleven of the cases are living and well and one has had three recurrences in three years and ten months. In two cases death resulted from accidental causes not connected with the operation. In performing the operations two excisions were done, eight Gross operations and seventeen complete (Halsted and Meyer) operations. One case which survived two years died finally from metastatic cancer of the uterus. The male operated upon is still living, eight years later, and is free from local recurrence. The author then referred at length to fifteen complete operations performed since November, 1894, and gave the results in detail. In conclusion he gave a synopsis of five cases that are living without recurrence, after complete operation.

Dr. F. H. GERRISH of Portland, Me., referred to the work done by Dr. Halsted and to the fact that a recent text book contains scarcely anything on the subject. He then referred

to the various operations which have been performed and showed how, step by step, the present method was arrived at. He considered that one of the most important points was the necessity for the removal of all mammary tumors whether benign or malignant. He also laid great stress upon the thoroughness with which the operations should be performed and the length of time required to do it. After commenting on the hopefulness of the prognosis in these cases at the present time, he referred to the fact that many cases referred to in the author's paper would until recent years have been regarded as absolutely unfit for operation.

Dr. HALSTED, in closing the discussion on his paper, said he was surprised to learn that Dr. Matas had had such marvelous results in operating by the old methods. As to age, he had seen one case at about 28 or 30 years of age and had also had one of cancer of the liver at the age of 21 years. Referring to Dr. Park's inquiry as to the teaching regarding endotheliomata, he said this was a difficult question to answer. These tumors, as far as they go, are believed by some to be alveolar sarcomata, and there are no doubt some examples of sarcomata where evidence is found of endotheliomata, as for example in the parotid and the testicle. With regard to the spontaneous disappearance of tumors, the author remembered one typical case of cancer of the breast in which this occurred, and also a case of epithelioma of the face. With regard to the non-involvement of the glands of the axilla, different surgeons had different experiences and no rule could be laid down on the matter.

AN INQUIRY INTO THE ETIOLOGY OF CANCER WITH SOME REFERENCE TO THE LATEST INVESTIGATIONS OF THE ITALIAN PATHOLOGISTS,

was presented by Dr. ROSWELL PARK of Buffalo, who stated that to attack this problem successfully pathologists of the future must begin by studying tumor formation in the vegetable world before studying it in animals, *i. e.*, the comparative method of investigation must be adopted, as the xylomata or woody tumors are so exceedingly common that they have failed to attract the attention which they deserve. The lipomata are the most frequent, frequently multiple, usually symmetric and of traumatic origin. The fibromata are usually of traumatic origin and the majority contain foreign bodies which have acted as the exciting cause. The myofibroma of the uterus is, strictly speaking, a leiomyoma and, according to Billroth, always commence by formation around a small blood vessel. Chondroma is most common in infancy and childhood and practically inseparable from rickets. Osteoma is often seen as an exostosis or as an ossification. Adenoma frequently becomes converted into carcinoma. The only two theories worthy of consideration in reference to malignant tumors is the embryonal and parasitic. In the vegetable kingdom it is hard to distinguish between various grades of malignancy, but nevertheless that tumors kill a large proportion of trees and shrubs will not be disputed by those who have studied the subject. Cancer has been happily defined as an abortive attempt of gland epithelium to reproduce itself, and sarcoma is a similar process pertaining to mesoblastic cells. It used to be taught that cancer was exceedingly prevalent at certain ages, but the author stated that, living in a region where cancer is exceedingly prevalent, he had witnessed the ravages of the disease in many relatively young people.

Among the many clinical considerations pointing to the study of cancer the writer mentioned influence of sex, age, brunette or blonde, heredity, size of heart, arteries and lungs, and geographic locality. As to the influence of sex, Dr. Williams has found that for every 100 males dying of cancer, 225 females perished from the same disease. With regard to age, the most prolific cancer-producing age is between 55 and 65 years. Williams has also found that, at least among females, the disease is twice as frequent in brunettes as in blondes, while Beddoe states that red haired individuals are the most exempt of all. As to heredity this is one of the most vexed questions, and opinions differ very much. Patients with large hearts, arteries and small lungs are often the subject of cancer, whereas in tubercular patients the opposite is true. Speaking geographically, cancer is certainly on the increase in certain parts of the world, and so true is this that the neighborhood of Buffalo, N. Y., has been termed "tropic of cancer."

The question has often risen as to whether cancer can be disseminated through the agency of insects and whether water, especially in the neighborhood of woods, could act as a medium of transport, which it is believed is at present conceded. Up to the present time experimental auto-inoculations have practically failed.

Taking up the subject from a historic standpoint, the writer, with Roncali, divided the past few years into four periods, *i. e.*, The period of inaccurate observation and erroneous conclusion which began with Nepveau in 1872; the period of accurate observations and inaccurate conclusions, which is essentially the coccidial period and began with the discovery by Halle, Virchow and Gubler of protozoa in human tumors; third, the iconoclastic period of doubt as to the accuracy of all past researches, beginning with Russell's work in 1890 and ending with the research of Banti and Nisser in 1894; and the period of successful inoculation, practiced for the most part by Italian pathologists. As an illustration of Roncali's method of securing cultures, he prepared in one case sixty tubes of distilled water containing a little sugar and acid, and in each of them he placed small bits of tumor cut with a sterilized knife. These were kept at 37 degrees C. for ten days, when surface growths were found upon thirty-seven of them, which when examined in the hanging-drop were easily recognized as blastomycetæ. In conclusion the author stated that when it comes to the detection of fungi in microscopic sections the methods are more or less complicated and require considerable training in special manipulation and observation and gave in detail two methods for this work.

Dr. J. MCFADDEN GASTON of Atlanta read a paper entitled

REMEDIAL MEASURES IN OBSTRUCTION OF THE COMMON BILE DUCT.

He said that cases of jaundice which result from the temporary closure of the common bile-duct are usually left to the treatment of the physician and yet are the precursors of derangements which require surgical interference. They commence with functional disturbance, but terminate in organic derangements. Murphy lays great stress upon the relief of jaundice by pilocarpin. The reliance of the greater number of practitioners for relief in this class of cases has been, and continues to be, upon the phosphate of soda. But there have been more good results claimed from the employment of olive oil internally than from any other remedy of this class. After exhausting medicochirurgic means of treatment for biliary complications, without arresting obstruction of the common bile-duct, the surgeon is confronted with conditions calling for operative interference. There may exist a stenosis or stricture of the walls of the duct, without occlusion of the canal, dependent upon inflammation, or there may be a partial obstruction of the lumen of the duct from the presence of a gall-stone which permits the bile to pass around it to a limited extent. In some cases Fenger has demonstrated that a gall-stone may be so located as to form a valvular closure. Though an outlet may be artificially provided for the bile by connecting an opening in the gall bladder with one in the abdominal wall, there is not always relief to the cholemia, and its effects upon the general health of the patient continue even to a fatal termination. In a case presenting no enlargement of the liver, the incision should be made on a line an inch and a half below the border of the costal cartilages, and should be about three inches in length. He said that he had elsewhere given an unfavorable opinion in regard to exploratory puncture, and does not consider it entitled to recognition as a means of diagnosis or measure of treatment. The various measures recognized for the relief of construction of the common duct by gall-stones are, breaking up of the calculi by the needle, crushing by padded forceps, forcing them into the gall bladder or duodenum, catheterization and excision through the walls of the duct. In some cases it is impracticable to attach the gall bladder to the parietal opening or to suture the incision in the wall of the duct when a stone is extracted, and thus it becomes necessary to provide for drainage by packing with gauze around the field of operation, leaving the ends of the strips extending out of the wound.

In doing operation upon three white women for obstruction of the common bile duct, by forming a fistulous opening for the bile externally, the cholemia persisted in an aggravated form until death supervened in each case. In some conditions of temporary impediment to the flow of bile through the duct into the duodenum, the attachment of the incised gall bladder to the parietal opening has relieved the obstruction and been followed by the restoration of the bile. It is in order to state that only in complete occlusion of the duct, which has proved intractable to other procedures, has an artificial opening from the gall bladder or common bile duct into the alimentary canal been thought proper. This anastomosis is effected in various ways, either with the duodenum, the small intestine or the colon, the last named being least desirable, as it fails to secure the advantages of the bile in the process of intestinal digestion. My experiments upon dogs demonstrated the feasibility of this fistulous communication of the gall bladder with the bowels, and it is a matter of minor importance by what process it is accomplished.

The statistics in the past show that the various modes of procedure are comparatively free from danger and are attended with a marked degree of success, so that we may reasonably expect cholecystenterostomy to be recognized as a safe and efficacious recourse in the future annals of surgery.

Dr. H. W. CUSHING of Boston, read a paper entitled

TRAUMATIC RUPTURE OF PANCREAS; FORMATION OF HEMORRHAGIC CYST; OPERATION FOLLOWED BY A PANCREATIC FISTULA AND RECOVERY.

He reported a case in which a blow on the abdomen had caused a rupture of the pancreas followed by the rapid formation of a larger pancreatic cyst simulating closely an abdominal aneurysm. Four weeks after the injury he evacuated the cyst through an abdominal incision and drained it. The wound in the pancreas was found near the mental tubercle, but the critical condition of the patient contraindicated any attempt to suture it. For two days the patient was quite dangerously ill. On the third day following the operation a subphrenic abscess was evacuated through a bronchus and the patient rapidly recovered. There was a profuse discharge of pancreatic fluid from the abdominal wound. The cyst contracted rapidly to a small sinus, which healed on the seventy-seventh day after the operation. The case during its convalescence furnished the rare opportunity for an investigation of pancreatic fluid in a human subject. This showed a fluid strongly alkaline; specific gravity 1011 instead of 1030 as is usually stated. It removed the epidermis of the patient whenever it came in contact with it, causing great discomfort. It did not effect the peritoneum. The rate of secretion was measured and varied from 5 to 60 c.c. for an hour. The maximum was during digestion. The total daily amount was 500 to 660 c.c., or double the amount generally stated by physiologists. The complete analysis and the physiologic reactions were reported in full. The patient when last seen, fifteen months after the injury, was well and showed no functional disturbance of any alimentary process.

Dr. W. W. KEEN of Philadelphia, spoke of the rarity of these cases, and mentioned one occurring in his own experience. In this case there was no wasting of the patient, no sugar in the urine nor any fatty stools. He believed that ordinarily one should be content to simply open and drain.

Dr. W. S. HALSTED of Baltimore, referred to four or five cases of pancreatic cysts occurring in his practice.

Dr. T. F. PREWITT of St. Louis, commented upon a case of enlarged spleen which came under his observation fifteen years ago. Upon operation it was found that a cyst of the pancreas was connected with it. The cyst was tied off and the woman made a perfect recovery. A second case was that of a patient who had been in bed for four months and had lost much flesh. Upon cutting down in the median line over a swelling, much pus and fluid was found, and it was observed that the tumor extended to the backbone, necessitating a counteropening. A large calculus was found and removed, and was believed to have been the cause of the trouble. This calculus was supposed to be pancreatic in origin.

Dr. N. B. CARSON of St. Louis, read a paper entitled

CEREBELLAR TUMORS.

He stated that his object in reading the paper was to add somewhat to the literature on the subject, and to call attention to a symptom which has been much overlooked or neglected, namely, the so-called "Cranial Cracked-pot Sound" due to separation of the sutures from internal pressure, caused by the accumulation of fluid in the brain cavities produced by the closing of the latter or pressure upon the veins of Galen or both. After referring at some length to the history and treatment of four cases in which this sound was present, he stated that this sound must not be mistaken for the high pitched sounds present in some cases of brain tumor. It is not necessarily a sound of childhood either, but may be present at any period before the sutures have become permanently united. In an analysis of forty-nine cases of cerebellar tumors the author had found mention made of the presence of hydrocephalus in twenty-two of them, which makes this sound an even more important symptom. In an examination of the literature Dr. Carson could only find reference made to this "Cranial Cracked-pot Sound" twice, which led him to conclude that the symptom had been overlooked.

Dr. W. W. KEEN of Philadelphia, in discussing this paper stated that the first time his attention was called to the sound was by a patient who had noticed it when feeling his head soon after fracturing his skull by falling through the roof of a veranda. He believed it would be found to be a symptom of value, especially where there was doubt as to the existence of the fracture and the necessity for operation. As to hydrocephalus, he had observed this in many cases in the acquired form and moderately early for some years past. Where the edges of the bone have separated it is impossible to get this sound, but early in the case it may be gotten and heard as much as ten feet from the patient. In his opinion it should receive more attention in the future.

Dr. DEFOREST WILLARD of Philadelphia, referred to a case of hydrocephalus recently brought to his office, in which the existence of a cerebellar tumor was suspected. And in this case the sound was absent, although it could hardly have been expected, as the child was less than a year old. There was total lack of cerebral development and extreme rigidity of all the muscles of the body.

Dr. CARSON stated that it was true that this sound was only present in cases of acquired hydrocephalus and extensive fracture of the skull. He agreed with Dr. Keen that where the sutures are widely separated the sound is not likely to be elicited.

Dr. W. W. KEEN of Philadelphia, read a paper entitled

CASE OF APPENDICITIS IN WHICH THE APPENDIX BECAME PERMANENTLY SOLDERED TO THE BLADDER, PRODUCING A URINARY FECAL FISTULA.

The case occurred in a man of 24 years of age, from whose urethra, at the age of 7, a pin was removed, no history of the insertion of which was obtainable. Some years subsequently the patient suffered from a supposed abscess of the prostate, from the spontaneous bursting of which a fecal fistula was established between the bladder and the rectum, and several attacks of cystitis followed. Numerous efforts were made to locate the two ends of the fistula, and the conclusion was reached that the rectal end was very near the surface. At the age of 25 years he was first operated on and a perineal section done, but the fecal fistula still continued. The formation of an artificial anus was then decided upon, the result of which was not altogether satisfactory, fecal matter frequently passing into the bladder before any was passed out of the artificial anus, and after eating strawberries the seeds were found in the urine before any escaped from the anus. These facts seemed to indicate that the fistula was between the bladder and some point in the intestinal tract considerably above the site of the artificial anus. The third operation was consequently performed and a very long appendix found dipping into the pelvis, the tip lying just behind the prostate and solidly incorporated into the wall of the bladder. A cuff of peritoneum was dissected from the appendix and used to cover the stump and the meso appendix was then divided. The cecal end of the appendix was treated in the same way and the abdominal wall closed without anything being discovered in the way of a point of connection between the bladder and the bowel. Subsequently a fourth operation was performed to close the artificial anus and to destroy a spur which existed at the site of the anus, so as to destroy the entire caliber of the bowel. Shortly after leaving the hospital attacks of vomiting and constipation occurred and twenty-four days after the last operation the patient died. At the necropsy, twenty-seven hours later, the one striking fact observable was the absolutely black color of the small intestines in the lower part of the abdomen, and examination showed that seven or eight feet of the ileum had been rotated to the right in one vast volvulus. Its mesentery formed a band which stretched across the ileum just before it joined the cecum, and this had evidently obstructed the ileum sufficiently to cause gangrene.

The diagnosis of a prostatic abscess was a very reasonable one as so long an appendix dipping into the pelvis and anchored by its meso-appendix immediately behind the bladder and a terminal appendiceal abscess so close to the prostate might well be mistaken for this condition. The possibility of the involvement of the appendix never occurred to those in attendance. Although appendicular abscesses bursting into the bladder are not at all uncommon, I know of no case in which the appendix has been so thoroughly united to the wall of the bladder as to form, as it were, a third ureter. While it may be said that a fifth operation in the form of an exploratory abdominal section should have been done, the uncertainty of the diagnosis, together with the fact that the patient had been operated on so much, caused me to refrain.

Dr. ROSWELL PARK of Buffalo, referred to two cases in which pins had been found in the urethra, and in neither case could the patient explain how the pins got there, but he believed they had probably been swallowed. He stated that he had oftener found pins in the appendix than grape seeds.

Dr. N. B. CARSON of St. Louis, mentioned one case in which a pin had been found in the urethra. He also referred to a case of remarkably long appendix. It was a horse-shoe shape and he thought it was the longest on record, being about thirteen inches.

Dr. KEEN, in closing, said it was quite possible that the pins had been swallowed.

Dr. GEO. R. FOWLER of New York, read a paper entitled

THE USE OF ANIMAL TOXINS IN THE TREATMENT OF INOPERABLE MALIGNANT TUMORS.

He discussed the subject under various heads, among others, "The Cure of Malignant Disease by Accidental Erysipelas," "The use of Septic Products of the Streptococcus Erysipelatis," "The Use of the Mixed Toxins of the Streptococcus Erysipelatis" and the "Bacillus Prodigiosus, "The Dangers of the Treatment," "The Condition of the Tumors under the Influence of the Erysipelas," "Treatment with the Toxic Blood Serum of Animals Infected with Streptococus Erysipelatis," "The use of the Venom of the Cobra Capella" and "The Influence of Artificially Produced Suppuration upon Malignant Growths." This paper being read by title was not discussed.

A paper by Dr. L. C. LANE of San Francisco, on the "Hypertrophy of the Prostate Gland and Suggestions in Regard to its Treatment," was read by title.

After giving the location and average size of the normal gland together with its principal constituents, the author referred briefly to various palliative methods of treatment as well as operative. He believed that castration would have a permanent place in the treatment of prostatic enlargement in the future. He then quoted briefly from two cases upon which he had operated, one of whom died and one recovered.

Dr. MORRIS H. RICHARDSON of Boston, read by title a paper entitled "Rapid Disappearance of an Apparently Hopeless Sarcoma of the Scapula with an extensive Streptococcus wound Infection;" also a paper entitled "A Case of Violent Streptococcus Infection of an Amputation Wound, with Three Months' Treatment by Antitoxin Injections of a Round Celled Sarcoma of the Ankle."

Dr. DAVID W. CHEEVER of Boston, read by title a paper on "Some Cases not Operable."

THIRD DAY—MORNING SESSION.

This was devoted to Council and Executive Meetings.

AFTERNOON SESSION.

Dr. T. F. PREWITT of St. Louis, read a paper on

GUNSHOT INJURIES OF THE SPINE, WITH REPORT OF A CASE.

He referred in detail to a case of fracture of the spine due to a gunshot injury, resulting in recovery. He then quoted at length from a number of prominent authors on the subject of operative interference in these cases. He divided gunshot injuries of the spine into three classes: 1, those that simply fracture the arches; 2, those that invade the canal, crushing the cord and damaging the vertebra, and 3, those complicated by serious injury to abdominal or thoracic viscera. He then gave some particulars of cases referred to by various surgeons with the results, and stated that he had tabulated forty-nine cases treated since the aseptic era, of which twenty-four were subjected to operation, with eleven recoveries and thirteen deaths. The conclusions reached by Dr. Prewitt were: 1. That it is the duty of the surgeon to advise immediate operation in all cases of gunshot wound of the spine, provided the wound has involved the posterior or lateral parts of the spine at an accessible part, unless the condition of the patient is such as to indicate clearly that he is hopelessly crippled. 2. To wait to see whether nature is competent to restore the damage is to wait until irreparable damage has been done in many cases and rapid degenerative changes, meningitis and myelitis have resulted. The delay permits of the continuance of the conditions, the removal of which is the purpose of the operation. These considerations apply with greater force, if possible, in gunshot injuries than in others. 3. The presence of complications due to penetration of the great cavities and injury of the viscera will influence the question of operation, but not necessarily forbid it. At the end of the paper there was a very extensive tabulation of cases.

Dr. W. W. KEEN of Philadelphia, expressed his belief in operating for gunshot injuries of the spine unless the indications pointed to a total transverse lesion. He doubted very much the probability of such a lesion unless it was proved that the patellar reflexes were entirely absent. He stated that some years ago, when looking up the question of the surgery of the spine, he observed that there were very few cases reported of suturing the spinal cord, and in no case was it thought that good resulted. In general he was of the opinion that if there was not a transverse lesion, suturing was not advisable and he doubted its efficacy.

Dr. MAURICE H. RICHARDSON of Boston, referred to the difficulty of diagnosis in these cases as to the exact condition of the spinal cord and expressed himself as very undecided what to do when accidents happened to this region.

Dr. H. F. BURRELL of Boston, did not think it possible to come to a proper recognition of these cases until the pathologic condition in the cord as the result of the injury was clearly understood and the only way to understand it was by opening up and examining, except in the case of shock, when this procedure would be contraindicated. He referred to the case of a woman whose spine was doubled on itself by jumping from a window, from which injury she died thirty-six hours later, after being completely paralyzed from the time it happened. At the autopsy there was no compression of the cord although red softening had already begun, thus proving that if any operative interference is to be attempted for the removal of a clot, bullet or fragment of bone it must be done immediately. Although the mortality will doubtless be very great there will be a certain number of cases terminate favorably. In 1894 he presented to the British Medical Association some statistics on this subject which he divided into those extending from 1864 to 1886 and those from 1887 to 1894. During the former period the cases had been treated by immediate rectification of the deformity by force with a percentage of eighteen recoveries out of one hundred cases. The second group was treated by immediate suspension followed by the use of plaster-of-Paris, with the result that 28 per cent recovered, an increase of 10 per cent.

Dr. N. B. CARSON of St. Louis agreed with Dr. Burrell that a certain number of cases would no doubt recover after operation. He mentioned a case of a man who was caught by the neck and pulled forward while trying to enter a low doorway riding on a load of hay. Complete dislocation of the spine resulted with loss of sensation and retention and paralysis of the bladder. Upon the patient consenting to an operation he was immediately suspended by the Sayre's suspension apparatus and dislocation was reduced. Immediately thereupon there was collapse and loss of consciousness. The man was at once lowered and after being well padded left alone. Later a plaster of Paris jacket was applied and an excellent recovery resulted.

Dr. P. S. CONNER spoke in favor of exposing the damaged part in order to ascertain the exact character of the injury and to remove anything that might be pressing upon the cord. He did not believe that the symptoms ordinarily clearly indicated the character of the lesion and although the mortality from operation would be heavy he considered that a moderate amount of gain was preferable to an excessive amount of loss.

Dr. F. S. DENNIS of New York referred to the publication from him, some time since, of a number of cases treated with the plaster-of Paris jacket, in which excellent results followed. He strongly urged the ministration of large doses of the iodid of potash during the time the patient was wearing the plaster as he believed it had great advantage and benefit on the absorption of the clot.

Dr. CARSON again spoke on this paper and stated that he was not very much impressed with the results obtained by the use of the plaster-of-Paris jacket, especially if applied after inflammatory changes had taken place.

Dr. W. H. CARMALT said he should have no hesitation in operating in the case of gunshot wound in order to prevent infection. He quoted one case where operation was refused and the patient recovered after simply being treated by the application of the plaster-of-Paris jacket. A second case, where operation was also refused and in which practically the same symptoms were present was treated in the same way and died in three days so that he did not believe surgeons were at present in a position to formulate any rules on this subject.

Dr. BURRELL again discussed Dr. Prewitt's paper and commented upon the case reported by Drs. Carson and Carmalt. He believed that sometimes there is a reunion of the fibers of the cord by the formation of connective tissue, which is subsequently absorbed.

Dr. W. H. HALSTED of Baltimore, agreed with the previous speakers and stated that he had only had one successful case.

Dr. PREWITT closed the discussion by referring to the excellent work done by Drs. White and Burrell on this subject. In his opinion such fractures as those referred to by Dr. Carson should be called simple fractures, ofttimes resulting from a displacement of the body of the vertebra itself. It is quite possible for dislocations to cause pressure on the cord without there being any fracture, especially if the lamina be fractured. Gunshot wounds, he stated, are always compound and local, and he believed the great difficulty in determining what to do for these cases was the fact that one did not know the exact condition present, and this could only be ascertained by cutting down upon the cord. Seeing that most of the cases would die anyway, he did not think any harm could be done by opening up and disinfecting the wound. If the likelihood of meningitis can be lessened, the benefit of the doubt should certainly be given to the patient. He then referred to cases reported by

Cooper and especially to one reported to Hawley where the man lived for five and a half years after a gunshot injury, subsequently dying from irritation caused by the fragment of bone. Had these been removed the man would probably have lived many years longer. With regard to the complete severance of the cord he thought the condition of the case reported by Dr. Briggs pointed strongly in this direction as pain, sensation and motion immediately appeared after the suturing of the cord whereas all had been absent before. He did not believe in waiting several weeks before operating but was in favor of immediate interference.

He reported having seen good results in several cases from the application of the plaster of Paris jacket and quoted the statistics of Dr. Burrell in this connection. He would not urge operative interference where it was apparent that pressure was not being exerted upon the cord but he believed that in gunshot injuries one would almost always find spicules of bone and pieces of lead long after the accident. In conclusion he agreed with Erichsen that but little harm could be done by operation anyway and if a few cases could be rescued it was worth doing.

The following papers were read by title: "Nosology and Morphology of Tumors, True and False," by Dr. Souchon of New Orleans. "Radical Cure of Femoral Hernia in the Light of Recent Methods," by Dr. Rudolph Matas of New Orleans. "A Case of Fecal Communication," by Dr. Geo. R. Fowler of Brooklyn.

Dr. JAMES E. MOORE of Minneapolis, read a paper entitled

HYSTERIA FROM A SURGICAL STANDPOINT.

He said that hysteria is so frequently met with in surgical cases that the surgeon must always be on the alert or he will be guilty of grave errors in diagnosis and prognosis. Hysteric symptoms frequently develop as a post-operative complication. Rise of temperature following operation may be purely neurotic. He cited some cases. Persistent hiccough, cough, or emesis following an anesthetic may be hysteric. Cases of hysteric aphonia following an operation in an adult male. Phantom tumors mentioned. The surgeon shall be careful in operating upon or advising neurotic females in whom the subjective symptoms are out of all proportion to the objective, because they will often be willing to submit to grave surgical proceedings when their sufferings are purely imaginary. Such patients frequently derive morbid pleasure from an operation. These patients are better subjects for the osteopaths and Christian scientists than for the surgeon. The author cited a case in which the patient had had several operations performed and who was willing to submit to an operation for appendectomy although she had no appendicitis. Hysteric hyperesthesia, anesthesia, paresis and seemingly complete paralysis may be so mingled with real pathologic conditions as to mislead skilled diagnosticians. Patrick's method of diagnosticating hysteric hyperesthesia or anesthesia by means of the shifting border of the affected area he found helpful in diagnosis. The surgeon meets with hysteria most frequently in joint and spine ailments. Hysteric joints are a close resemblance to diseased joints and should always be remembered by the surgeon to avoid mistakes in diagnosis and prognosis. The hysteric joint usually follows an injury. There is slight atrophy, no local rise of temperature or it may be subnormal; no marked swelling but may be slight puffiness; marked restriction of motion, but is voluntary in character and readily overcome when the patient's attention is directed to something. The muscular spasm is different in character and more pronounced than that from tuberculosis. The deformity is often exaggerated and often differs from that of disease. Hysteric joints are most common in hysteric persons, but may occur in persons with no such history. A hysteric patient may develop a tubercular joint. Prognosis in hysteric joints is good, organic changes rarely if ever present. Suggestion is a valuable means of treatment. Correction under anesthesia is recommended. Cutting operations are not necessary. Cord changes do not occur from hysteria. Hysteric spine is easily diagnosticated because it does not resemble deformity from disease. A number of cases were reported illustrating hysteria as met with by the surgeon.

The following officers were elected for the coming year:
President, W. W. Keen of Philadelphia.
First Vice-president, A. Vanderveer of Albany.
Second Vice-president, C. H. Mastin.
Secretary, H. L. Burrell of Boston.
Recorder, DeForest Willard of Philadelphia.
Treasurer, G. R. Fowler of Brooklyn.

Delegate to the Association of American Physicians and Surgeons, Wm. H. Mastin; Alternate, F. H. Gerrish of Portland, Maine.

Place of next meeting, Chicago, Ill., at a date to be determined later.

Medical Association of Georgia.

Proceedings of the forty-ninth annual meeting, held at Cumberland Island, April 20, 21 and 22, 1898.

FIRST DAY—AFTERNOON SESSION.

The Association met at 2 P.M. in the Auditorium of the Georgia Teachers' Association, and in the absence of the president, Dr. James B. Morgan of Augusta, the meeting was called to order by the first vice president, Dr. L. G. HARDMAN of Harmony Grove.

Divine blessing was invoked by Dr. J. W. Duncan of Atlanta.

Col. R. E. PARK was then introduced and delivered an "Address of Welcome" on the part of the Cumberland Island Club.

Dr. J. A. BUTTS of Brunswick welcomed the Association on the part of the local profession.

The response to these addresses in behalf of the Association was made by Dr. Hardman.

Dr. J. G. HOPKINS of Thomasville read a paper entitled

A FEW CASES FROM MY NOTE-BOOK.

Case 1 was that of a man 30 years of age who complained of having "a chafe which would not heal." Upon examination the Doctor found two fistulas centrally located over the lower end of the sacrum, one inch apart, and about one-twelfth of an inch in diameter. He converted the two openings into one and found a bunch of curly blonde hair about two to two and a half inches long, and in amount sufficient to fill a No. 10 thimble. After scarification and cauterization he left the wound to heal by granulation. A month later the patient returned saying that the wound had never healed. On examination the cavity was found well filled with new tissue, but there were several small fistulous openings instead of the two, as before. From each of these openings he drew several strands of hair, similar to those first removed. He cut down again to the bone, drew a lot of hair out of the flesh from different directions and packed the wound. He again allowed the cavity to fill and the same result was obtained. He again cut down and resorted to the same procedure, and the wound is now open and the same condition exists. He said that a dermoid cyst was not a very uncommon thing, but the sex, situation and constant recurrence of the hair in this case rendered it rather unique.

Another case was that of a mulatto, aged 28 years. His personal history was good and he was never sick except with a slight attack of the influenza in December, 1896. He was seen first on Sept. 20, 1897; had had fever about twenty-four hours; temperature 102 degrees and pulse 128; had a few bullæ on lips, face, wrists and shins. A diagnosis of pemphigus was made and quinin and arsenic treatment begun. Local applications of dry boracic acid were resorted to. The bullæ appeared thick and fast, varying in dimensions from the size of a filbert to that of a walnut and required but a few hours to reach full growth. They were punctured at each visit, giving exit to the fluid contents at the most dependent point, leaving the cuticle otherwise intact for protection. In a few days almost the entire cuticle had been separated from the cutis. The scalp, palms, and the mucous membrane of the nose, mouth and throat were extensively involved. Deglutition was difficult and painful and liquid diet a necessity. The symptoms in this case were those of pain, itching and fever. The treatment, while in the hospital, was mercurial cathartics, followed by salines and liquor potassii arsenitis in increasing doses; also large doses of the sulphate of quinia. The local treatment consisted of alkaline baths and a paste compound of aristol, bismuth, oxid of zinc and vaselin. The patient was enveloped in absorbent cotton from head to foot, the same being held in place by roller bandages. His mouth and nose were kept clean with peroxid of hydrogen and he was subjected to formaldehyde fumigation. The skin remained pigmented for three months after. Patient was discharged cured, Oct. 27, 1897.

Dr. WILLIAM C. LYLE of Augusta followed with a paper entitled

THE IMPORTANCE OF CAREFUL CHEMIC ANALYSIS IN GASTRIC DISORDERS

In which he showed that the technique of chemic analysis of the gastric contents was by no means difficult, and that in the determination of a correct diagnosis it was of the utmost value. He said that the skill to obtain and analyze the contents of the stomach did not lie beyond the dexterity and ability which every physician ought to possess, and it certainly should be utilized, when we consider that the diagnoses of diseases of the stomach are based as much upon the results of our own investigations as upon the statements of the patients themselves. The author contented himself by referring to only a

few of the more important tests, tests requiring no apparatus nor reagents that the average practitioner does not possess. He first spoke of the test meal, then stomach contents, lactic acid, pepsin and absorbent tests, after which he reported cases, that had recently occurred in his practice, where a positive diagnosis would have been very difficult without frequent chemic tests. The first case was one of simple dilatation of the stomach; the second, round ulcer of the stomach and acute gastritis; the third, cancer of the pylorus; fourth, obstruction of the portal circulation due to cirrhosis of the liver, as shown by autopsy.

The next paper, entitled

GERMS OF HEALTH AND DISEASE.

Was read by Dr. J. W. DUNCAN of Atlanta.

The author said that much attention had been given to the germ theory of disease for a number of years, and much had been learned through patient and faithful bacteriologic research. Reference was made to the contributions of Dr. Heneage Gibbs, one of the foremost bacteriologists, and who for several years occupied the Chair of Bacteriology in the University of Michigan. While recognizing the existence of bacteria, and their possible influence, Dr. Gibbs denied their importance as a causative factor of disease. He conceded to Dr. Koch the discovery of the tubercle bacillus, and the bacillus of cholera, but he denies that in either instance has the etiologic influence been demonstrated. He denies, furthermore, that these pathogenic micro-organisms are always present in certain diseases. He declares that he has conducted hundreds of autopsies on consumptives without finding a trace of the bacillus of tuberculosis. He said: How can we most successfully limit the spread of contagious diseases? In the operating room extensive major operations are being done daily under aseptic and antiseptic regime, and notwithstanding the extensive field explored, not a microbe or bacterium can gain a foothold. Much is being done in private practice to limit the spread of the disease, but very much more should be done. The excreta from the sick, whether from the bowels, kidneys, lungs or skin, should be disinfected, and as soon as possible the house should be fumigated. It has been said that "cleanliness is next to Godliness," and therefore our sanitary boards should be vigilant in keeping everything clean, that is, in their province. There should be more attention given to the matter of the milk we drink, and that there be no sources of contagion from them. Meats and vegetables demand investigation. Each individual should observe the laws of sanitation and hygiene relative to his own person and premises. By so doing he will be the better able to resist contagion should he be exposed. He then dwelt upon antitoxins, the results from which he considers far from satisfactory and spoke of the use of antiseptics, what they were, and how they acted.

Dr. W. Z. HOLLIDAY of Augusta, said that he had recently treated a well advanced case of consumption, where a microscopic examination was first made. The expectoration from this patient consisted of lumps of sticky mucus in which one would expect to find colonies of so-called specific germ of the disease, but repeated microscopic examinations failed to demonstrate the presence of the tubercle bacillus.

Dr. DUNCAN in closing the discussion, said that tubercle bacilli were frequently found during the incipient stage of tuberculosis, but that later in the disease, although the expectoration was carefully examined none were to be found, while still later tubercle bacilli might be found in the sputum in abundance.

Dr. W. H. ELLIOTT of Savannah, read a paper entitled

MUSHROOMS—A FOOD AND A POISON.

He stated that the number of mushroom-eaters in this country was steadily growing larger, and it was encumbent upon physicians to know how to recognize and treat cases of mushroom poisoning. Mushrooms belong to that order of plants known botanically as fungi. There are many thousand species. By far the larger number are microscopic, such as the mildew, the smut on grain, and the mold that forms on cooked fruit, etc. The larger forms of fungi are known indifferently as toadstools or mushrooms. These number about one thousand species. While mushrooms grow in many different forms, the commonest and best known is the campestris, or mushroom of commerce. This belongs to the class of agarics, or gilled mushrooms. Dr. Elliott then described the structure of an agaric. He spoke of three classes of mushrooms ordinarily used for food; agarics, boleti and puff-balls, and described their structures. He said that in the United States food was so abundant and mushrooms so little known that tons of delicious food were allowed to go to waste for the want of the gathering. Their use in this country was limited to a few botanists and others, members of mushroom clubs of Boston, New York, Philadelphia and Washington. In Europe mushrooms were in general use as food. They were gathered in the woods and fields, regularly sold in the markets, and in Paris miles of cellars were maintained for the artificial cultivation of the mushroom of commerce. He had in the past two seasons tried about one hundred varieties of mushrooms without any unpleasant consequences. To the beginner he would say, avoid all mushrooms with a cup or the suggestion of a cup, especially if the mushroom has white gills. Reject all that are not perfectly fresh, or that are worm-eaten. In short, mushrooms should be gathered with care and studied well.

FIRST DAY—EVENING SESSION.

This session was largely taken up with the consideration of routine and miscellaneous business.

SECOND DAY—MORNING SESSION.

Dr. HOWARD J. WILLIAMS of Macon, read a paper entitled

A SUPERNUMERARY CERVICAL RIB; A DECEPTION OF SKIAGRAPHY.

The author said that while the discovery of Roentgen was a material advance in surgical diagnosis, it was not an infallible aid. Mistakes in interpretation could lead to mistakes in operating, and its value as medicolegal evidence was doubtful. Three times during the past year the speaker had been misled by X ray photography; twice into performing useless operations for lesions supposed to be dependent upon apparent bone injury, and in one case a supposed tumor proved to be an anomalous rib. Fortunately, the operation was necessary, and the results were as satisfactory as they would have been had a tumor existed. The speaker thought that either of the two photographs of the bone injury exhibited in a court room would have been damaging evidence in a malpractice suit, had not the operation disclosed the fallacy of the skiagraph. Dr. Williams then detailed the case of supernumerary cervical rib. In looking up the literature of anomalous ribs he found that Quain described an occasional supernumerary rib which sprang from the body and transverse process outside of a vertebral arterial foramen. This was, however, a false rib, having no distal attachment. He could not, in the books to which he had access, find any description of a supernumerary rib corresponding to the one he presented, that is, a rudimentary rib springing from the sixth cervical vertebra with a single attachment, a complete arch, and a long insertion on the first rib. The patient pursued the usual normal course after aseptic operations, had primary union and was restored to health without pain or interference with the functions of the parts involved.

Dr. SAMUEL LLOYD of New York, said the use of the X-ray in medicolegal work without careful preparation for that work on the part of the surgeon, would do great harm. To leave a skiagraph to a single individual who might be interested in the case and go into court would be a grave error, for the deformity might be accentuated very decidedly by placing the tube in an improper position, and consequently in every case that has to appear in court the X ray picture should be taken before witnesses who can swear to the position of the photographic plate, the position of the patient on the plate, and the position of the tube, and at the same time, who can swear to the distance at which the tube was placed from the patient, so that allowances may be made for any distortion that may appear in the picture, and as far as possible to avoid distortion.

Dr. T. S. HOPKINS of Thomasville, read a paper entitled

DISLOCATION OF THE SIXTH AND SEVENTH CERVICAL VERTEBRÆ, WITH GENERAL PARALYSIS.

On March 3, 1897, Col. H. sustained an injury, the results of which made the case not only interesting, but remarkable. The history of the accident is as follows: While riding on a crank-car, the car collided with a wood cart. The shafts of the wood cart were elevated and one of them struck the patient on the forehead, knocking him over backward, his neck falling across a thin iron bar. He was lifted from this position unconscious. At the end of an hour consciousness was restored. He was taken to the house of a friend, placed in bed, and medical aid called. Diagnosis of shock was made. Next morning a consultation was held, and the condition of the patient pronounced serious. On lifting him it was discovered that his head would fall over his chest. It was also found that with the exception of the respiratory muscles, every muscle below the cervical part was paralyzed. The patient was then transferred to a Savannah hospital, where he received the best medical skill, and three or four days after admission the neck trouble suddenly disappeared. The neck became the only unparalyzed part of the patient. The diagnosis made by Dr. Boyd, the surgeon in charge, was dislocation of the sixth and seventh cervical vertebræ, with crushing of the cord, and spontaneous reduction by muscular contraction. After three months of

hospital treatment the patient was sent home as a hopeless case, the only improvement being a slight ability to move the right leg.

During the months of June and July last, Dr. Hopkins frequently visited and examined the patient. He was on a very restricted diet, and there was much muscular waste and atrophy. He feared the patient would never walk again. As he knew of no curative plaster to apply to a crushed cord, he advised that the restricted diet be abandoned, that physic be thrown to the dogs, and he be allowed to indulge in every article of food he could relish. This advice was carried out. Very soon the patient's dyspepsia disappeared and his appetite and digestion improved. He had beef steak, ham, eggs, oysters, shrimps, crabs, fish, and every variety of vegetables and fruits, and under this treatment gained flesh and strength. When he left him, about the first of last October, he had entire control of the right leg and arm. The index and middle fingers of the right hand were contracted. He could lift the left arm and hold it in any position except a perpendicular one, but the hand fell over on the wrist. This was not the result of contraction of the flexors, but the powerless condition of the extensor muscles. The bed sores had healed. The catheter and syringe which he had used for months were dispensed with, being no longer needed. The left leg was still paralyzed. Although the patellar reflex and motor power were absent in this leg, sensory power was present. Time and again he would say to the patient: "Lift this leg; you can if you will," but he always declared that it was impossible.

Having observed, in cases of locomotor ataxia, that though the patient could hobble about with his eyes open, when he closed them he would fall, Dr. Hopkins determined to aid the muscular power with the visual power. He therefore uncovered the paralyzed limb so that the patient could see it, and commanded him to lift it, and instantly the leg was lifted, but fell again. Some two weeks later the patient's then condition was compared with his condition six months prior, and there was found to be decided improvement in the case. He was able to draw up both his legs, and extend them with perfect ease; has gained flesh and strength, and is looking much better. If he continues to improve in the next six months as he has during the past six months, he will be able to walk.

Dr. Hopkins asked whether anyone could tell how it was that while life had been restored to the dead limbs, the bowels and bladder, without any evidences of wound or disease of the cord below the seventh cervical vertebra, that power of locomotion was still absent. The case had been submitted to a neurologist and a pathologist for opinion. Neither of them would believe that a dislocation of the sixth and seventh cervical vertebræ could produce paralysis of the upper extremities. He differed with them, and is consoled with the fact that the diagnosis of Dr. Boyd was endorsed by such men as Carpenter and Gross. During the patient's long suffering his intellect has never been impaired. He swore from the first, and still swears, that he will not die, and will before long be restored to his normal condition. Dr. Hopkins is now inclined to endorse his prognosis and, if verified, the case will be one without a parallel.

Dr. ELLIOTT of Savannah rose to answer the question in regard to paralysis of the upper extremities in such cases. He said many years ago he attended a woman who was shot directly from behind, by a pistol, in the fifth cervical vertebra. She lived a little less than five days after being shot, and was paralyzed from the site of the injury down to the bottom of the feet. She could move neither arms nor legs, nor anything else but her head.

Dr. J. W. DUNCAN of Atlanta, said that some years since he attended a negro man who had received an injury by a post falling upon him while taking down the scaffolding of a new church. He was struck on the back of the head, causing partial dislocation of the fourth and fifth cervical vertebra, followed by complete paralysis of the upper and lower extremities. The man could talk, and was rational. He lived about thirteen days. At the autopsy Dr. Duncan removed a portion of the cord involved in the partial dislocation and found that it had undergone degeneration and softening, and was very much like an ordinary abscess.

Dr. SAMUEL LLOYD of New York, said that some ten years ago he published the statistics of over two hundred cases of operations upon the spine for injuries, and for Pott's disease, and since then he had operated on a considerable number of cases. In Dr. Hopkin's case he thought that one part of the diagnosis must have been in error, and that was in regard to the crushing of the cord. A patient who has a crushed cord never recovers. The probabilities were that the cord was compressed, and from the progress of the case Dr. Lloyd suspected that the compression was a hemorrhage, and the absorption of the clot accounted for the recurrent power in the cord itself. Most assuredly, there was no injury at the time of the receipt of the trauma that destroyed the elements of the cord itself, for had it been the patient would have had an ascending and descending myelitis, and a consequent increase in the area of paralysis. Last summer he saw a patient who was shot four years ago, and received an injury to the right lamina of the seventh dorsal, a fracture of the spine of the eighth dorsal, a fracture of the left lamina of the ninth dorsal, and a fracture of the articular process of the tenth. The man had complete paraplegia below the segment of the cord injured. He had, however, increased reflexes, and particularly on one side, so that he had to travel around with the leg strapped up. If he let the right leg dangle it would throw him over his crutches as soon as anything touched him. He had compression by callus over the right lamina, and it was thought he would probably get well. The lamina of the fourth vertebra was taken out, after which adduction and abduction, and the reflexes, were normal.

Dr. HUNTER P. COOPER of Atlanta, read a paper entitled

A REPORT OF SURGICAL CASES.

The first case was that of a stone impacted in the deep membranous urethra of a child. There were no renal calculi nor any colic. There was retention of urine for thirty six hours. The author made a suprapubic cystotomy, and then a perineal section, removing by the latter a stone, the size of a small bean, which completely occluded the caliber of the urethra. Recovery ensued. The interesting point in this case was the rarity of it. The object of the double operation was to secure efficient drainage, and to satisfy the essayist that there was no stone left behind in the bladder. The after-course of the case justified the double operation, in that there was no untoward symptoms.

The second case was one of nephrotomy for a stone in the kidney, the patient being a member of the Association.

The third case was one of crushing wound of the lower end of the femur, received in a railroad accident in October, 1897. Amputation of the lower third of the thigh was done by one of the surgeons on the Georgia Railroad, immediately after the accident, followed by infection of the wound, profound and intense septicemia, necessitating the reopening of the whole wound, and the end of the bone projected between the flap, so that when the patient was brought to Dr. Cooper on the 10th of last December, the temperature was 103 degrees and the pulse 140. From the lower end of the stump to Poupart's ligament there was a large abscess necessitating operation under ether, and a pint of pus was evacuated. The patient did well for ten days, and then it was found that the granulations were in such condition that the lower end of the femur could be safely removed. Two inches of the lower end of the femur were removed. Later, large granulating masses appeared in the wound, which were found to contain bone, a microscopic examination of which revealed the development of osteosarcoma at the lower end of the femur. On January 18, Wyeth's bloodless hip-joint amputation was done. There was severe shock from operation, but recovery followed.

The fourth case was one of wry-neck, with open section of the sterno-cleido-mastoid muscle throughout its whole extent an inch and a half above the clavicle.

The fifth case was one of keloid on the back of the head and neck.

Dr. DUNBAR ROY of Atlanta, contributed a paper on

PERITONSILLAR ABSCESS.

The author said that the reading of this paper was more for the purpose of precipitating a discussion than an effort to add any new ideas upon the subject. A great deal had been written by laryngologists concerning the cause, symptoms and treatment of acute tonsillitis and chronically hypertrophied tonsils, but very little could be found concerning the manifestations of peritonsillar abscess, and even the various textbooks dismissed this practical subject with a few words. He quoted from the writings of Ingals, Lennox Browne, Max Thorner, C. E. Bean, showing that these writers differed materially as to the pathology and morbid anatomy of this affection. He then dwelt upon the anatomy of the affection. He had never seen a peritonsillar abscess the result of infection through the tonsillar lacuna but what had its seat posterior to the tonsil. Abscesses which occurred anteriorly, in his experience, were the result of suppurative processes from the posterior portion of the alveolar process of the lower or upper jaw on the same side. He had seen abscesses in the front of the tonsil, of most painful character, which were the result of a pathologic process in the last molar tooth. As to the cause of these peritonsillar abscesses, it is held by some authors that they are always the result of a previous tonsillitis. In the light of

our present knowledge, there could be no doubt as to the bacterial origin of this affection. Most writers hold that peritonsillar and tonsillar abscesses are more common in children than in adults, and yet the author's experience is just the opposite. With the exception of two cases only, all of his cases have been in adults.

Treatment.—Can the abscess be aborted? The author's views are that if the patient is not one of those predisposed to peritonsillar abscess, and the inflammation in the tonsil has started upon its surface, we may in some cases abort the abscess, but in the large majority of cases, we are powerless to stay its course. The treatment of tonsillitis and peritonsillar abscess naturally divided itself into the medicinal and surgical. On medicinal treatment the author quotes Ingals, who says: "Early in the attack the disease may be aborted, as in acute tonsillitis, in about one case out of four, by the application to the inflamed glands, once or twice daily, of a 60 grain solution of nitrate of silver, two or three applications usually being sufficient." Dr. Roy spoke in the very highest terms of this treatment in all forms of acute tonsillitis. He agrees with Ingals that guaiac is unsatisfactory. He is also in full accord with Max Thorner, who recommends the administration of large doses of salol in addition to local applications, but who says it is much better to begin early with hot fomentations around the neck, hot gargles, and hot inhalations in order to hasten suppuration, and in this way to shorten the duration of the disease. As to the surgical treatment of peritonsillar abscess, it is governed by a rule which the author has adopted in the treatment of all patients, and that is, adapting the treatment to the individual case, and not the patient to the treatment. It was the extreme of fallacy for physicians to have fixed rules for the management of all cases. It might be highly proper in the case of a big, strong lymphatic workingman to pick up a bistoury and plunge it into the abscess, press its sides, and evacuate the same thoroughly, and he perhaps would hardly flinch, but to undertake the same procedure in the case of a highly nervous and sensitive woman, was not right. Besides, the formation of a peritonsillar abscess was not near so painful in some patients as in some others and, therefore, did not require such active surgical measures. As the majority of abscesses follow from tonsillitis, his efforts are always to abort the inflammation, and this he accomplishes, if at all, by the administration of a good dose of calomel, followed by a saline purge. The tonsil and surrounding pillars are painted thoroughly with a 60 grain solution of nitrate of silver, repeated once daily. He starts early with hot gargles of vinegar and hot water, and then hot fermentations are applied externally. Salol and phenacetin always make the patient feel more comfortable, and for this reason alone he prescribes them. His experience with lactophenin has not been satisfactory. The author favors surgical measures when medical means fail.

Second Day—Afternoon Session.

Dr. Willis F. Westmoreland of Atlanta, reported twenty-nine successful cases of tracheotomy for foreign bodies in the air passages, and exhibited specimens.

Dr. M. F. Carson of Griffin, followed with a paper entitled

THE CONDITION OF IMPERFECT SEPTUM BETWEEN THE MOUTH AND NASOPHARYX, USUALLY TERMED CLEFT PALATE,

in which he advocated early operation for the closure of the cleft.

Dr. J. H. Shorter of Macon, read a paper on

SUPPURATIVE DISEASES OF THE MIDDLE EAR, AND THEIR SEQUELÆ.

He said that otitis media purulenta may be acute or chronic, the latter often a sequence of the first. The former, as is the case in most affections, yields the more promptly to treatment, with altogether a better prognosis both as to cure of the suppurative process and restoration of the function in the diseased ear, while, at the same time, the risk of serious secondary complications was much less. The exciting cause of an otitis media acuta may be an influenza and acute pharyngitis, improper use of the nasal douche, and sea bathing, diphtheria, etc. It was particularly liable to occur in the course of exanthemata, especially scarlatina, and sometimes is a complication of the other fevers, as pneumonia and typhoid. It may be traumatic, as from injury to the drumhead or injection of irritant liquids through the Eustachian tube, a mode of treatment for chronic middle ear catarrh favored by some men of eminence, but which he has quite abandoned on account of having seen so many cases of violent middle ear reaction, and even suppuration set up by it, not alone in his personal practice, but in that of other surgeons, some of them of noted skill and experience. In New York there were always a large number of acute middle ear inflammations during the season of surf bathing. This he attributes, not as he first thought, to the impact of the sea waves on the side of the head, or the canal over the drum-membrane itself, but to the spasm accompanying the sneezing, swallowing and gagging caused by water entering the nostril, driving the liquid up the Eustachian tubes into the tympanum. Among traumatic causes may be mentioned picking the ear with a sharp instrument for the removal of wax or a supposed foreign body. Not a few times he had known the drumhead to be lacerated by this foolish performance, and had a case on record where most of the membrane was removed, and with it the malleus and incus, done by a machinist who used a long awl in attempting to remove a supposed foreign body from the ear of a fellow workman. Predisposing causes are important factors in otitis media, both acute and chronic, and chief among them being obstruction in the nasal cavities or nasopharynx, adenoid or lymphoid tissue in the fold of the pharynx, hypertrophied faucial or pharyngeal tonsil, etc. The author then dwelt at length upon the treatment he carried out in dealing with these cases.

Dr. James M. Crawford of Atlanta, read a paper on

TONSILLOTOMY; WHEN AND HOW TO MAKE IT.

He said that tonsillotomy should be resorted to when the tonsils extend much beyond the pillars, not waiting until they touch each other, especially when oral catarrh exists. It is indicated even when the tonsil is slightly hypertrophied, if the lacunæ are inclined to inflammation from collections of caseous secretions. Shaving the tonsil destroys these lacunæ, thereby preventing frequent and painful inflammation. Not even the most timid operator would hesitate to make the operation when the tonsils are so large as to reach the uvula, thereby making it laborious to breathe, especially when the patient is asleep, and these diseased conditions often prevent respiration. Below the age of 15 years the tonsil is usually soft, and when cut with the tonsillotome the cut edges are more or less mashed or pressed together, thereby stopping the hemorrhage. In older persons, however, the tonsil is more fibrous. The walls of the cut vessels are pulled apart, as it were, by the firmness of the tonsil itself. He would not hesitate to make the operation when it was needed, even in the oldest. Fortunately, after a certain age the tonsils atrophy, and require to be removed rarely. Fewer cases of hemorrhage occur when the operation is made with the tonsillotome instead of the vulsellum forceps and bistoury. When using the forceps and bistoury the operator is apt to pull the tonsil too much with his forceps. In such a case he knows not where he is cutting. On completing the operation and looking into the mouth of the patient, he sees a sulcus where a portion of the tonsil should have been left. A sulcus, besides endangering the life of a patient by hemorrhage, is a source of constant annoyance in that it is a lodging-place for food. The author prefers Mackenzie's tonsillotome, or some of its modifications, to all others, for the reason that it is more simple, more easily managed, and less cumbersome. There need be no fear of the tonsil falling into the larynx, as it nearly always adheres to the instrument. Where it does not adhere to the instrument it falls into the mouth and is expelled. By applying a little cocain, say a 6 per cent. solution, to the tonsils and fauces, sensibility of the throat is allayed, which is a great aid in the operation. While acting as assistant to Dr. Calhoun, he could recall five or six cases of frightful hemorrhages from tonsillotomy made by him with the knife and forceps. In each case the hemorrhage was stopped by Dr. Crawford putting a wet sponge or pledget of cotton on the cut surface and applying pressure. In each of these cases a sulcus existed, making it impossible for him to see the bleeding artery, and forcing him to resort to the only safe method in such cases, namely, pressure. The first time he used this method for controlling hemorrhage was in the fall of 1889. The two means for arresting hemorrhage in connection with tonsillotomy were the cautery, when the bleeding point could be seen, and in other cases the application of pressure.

Dr. W. Z. Holliday of Zugusta read a paper on "The Use of Ethyl Chlorid as a Local Anesthetic," in which he recommended this agent very highly for local anesthesia.

Dr. R. M. Harbin had used ethyl chlorid and agreed with the author as to its efficacy. In selected cases it was an ideal local anesthetic.

Dr. J. G. Hopkins asked as to the danger in handling the tubes, to which Dr. Holliday replied that there was very little danger from explosion if the physician was careful.

Dr. Graham of Savannah had used with satisfaction the combined method of anesthesia, namely, ethyl chlorid and the infiltration method of Schleich.

THIRD DAY—MORNING SESSION.

Dr. J. T. Ross of Macon reported an interesting case of

OSSIFIC AND CALCIFIED OVARIAN FIBROMA

And exhibited the specimen. The specimen had very much the appearance of a fetal head. On one side a portion of the broad ligament, the Fallopian tube and ovary were seen. Almost all, if not all, of the fibroid enlargement was encrusted by an osseous deposit about one-sixteenth of an inch in diameter. The interior of the tumor was more firm and studded with calcareous deposits. Striæ could be seen running down into the tumor from that portion of the ovary which formed the growth. Authorities are agreed that only 3 to 5 per cent. of all tumors of the ovaries are solid, and that a fibroid of the ovary is very rare. The condition presented in the case of Dr. Ross was still more rare. In fact, the speaker does not remember to have seen a record of an ovary which had undergone both osseous and calcareous degeneration.

Dr. K. P. MOORE of Macon read a paper entitled "A Very Interesting and Unusual Monstrosity in the Form of Twins," and exhibited the fetus.

Dr. E. R. CORSON of Savannah contributed a paper, "A Rare Form of Bone Atrophy Following an Ununited Fracture, as Seen by the X-ray."

Dr. J. I. GRIFFITH of Danielsville read a paper on

PUERPERAL ECLAMPSIA AND SOME PROBABLE CAUSES OF IT.

As to its etiology, the author quoted from Hare's work on "Therapeutics." He said that in order to arrive at an intelligent treatment there must be a clear understanding of the condition the physician is called upon to treat. The treatment should be classified as preventive and curative. The preventive may be subdivided into medicinal and hygienic, and the curative into medicinal and obstetric. These forms of treatment were then dwelt upon at some length. The author reported four cases. Some probable causes of eclampsia he mentioned, as albuminuria, toxemia, uremia, pyelitis and pyelonephritis. He thinks albumin is one of the causes of puerperal eclampsia, for it is found in the urine of pregnant women.

Dr. GEORGE H. NOBLE of Atlanta made some remarks on

ALCOHOLIC IRRIGATION IN PUERPERAL SEPSIS.

He pointed out the difference between the ordinary method of removing the secundines with douches, and the alcoholic treatment. He said that the alcoholic treatment was gradually forcing itself upon the profession. When his attention was first called to it he had little or no confidence in it, for the reason that he did not believe in the antiseptic properties of alcohol, but the more he studied it the greater seemed its need of application in certain directions. The successful treatment of puerperal infection depended upon the selection of cases. The practitioner who failed to properly select his cases and properly apply treatment would be the man who would lose patients. No treatment applied to the cavity of the uterus could be expected to save a case of puerperal infection that had gone beyond the endometrium to any extent. Therefore it was necessary to exclude diseases of the appendages, as pus tubes, abscesses, etc. The treatment of the cavity of the uterus, where there was a pus collection in the appendages, was futile. Again, the practitioner might think the appendages were absolutely healthy, that there was no infection in the uterine cavity that could be detected, and yet the patient was in a hopeless condition, whereas the trouble might be an abscess in the uterus proper, or its parenchymatous structure. The practitioner should bear in mind that if he has a case in which the appendages and peritoneum are not involved, and in which there is no material discharge from the cavity of the uterus, where the uterus is shrunken in size, the os non-patulous, he is likely to have uterine abscess, but it is a rare condition. There may be one abscess or two. He had previously reported four such cases in which he made an incision into the abscess, curetted, cauterized and drained through the abdominal cavity. He cited an illustrative case, the woman having miscarried the day before she was admitted to the hospital, particles of placenta remaining. When admitted the pulse was 149 and temperature 102.1 degrees. The uterus was thoroughly curetted and cleansed. The temperature fell after curetting. The pulse dropped in the afternoon, after the curettement, to 136, and the temperature to 100.4 degrees. The next morning it was 100.3 degrees, the pulse remaining the same. On the third day the temperature arose in spite of careful irrigation in careful hands. He then instructed the house surgeon that if the temperature rose to 103 degrees to discontinue the other treatment and put the patient upon alcoholic irrigation. The next morning the temperature rose to 103 degrees and after alcohol irrigation it fell to 100.3 degrees. The course of the pulse and temperature then was steadily downward. At the end of eight days the patient was completely relieved. In this case there was a mixed infection, there being streptococci and diplococci found in the secretions. He said that alcoholic irrigation could be done by the general practitioner. The practitioner should use a rubber catheter thoroughly sterilized; take two yards of small gauze, the width of the finger, stitch it to the end of the catheter, introduce it carefully into the uterus, after it is cleansed, and loosely insert the gauze around it. The object of the gauze is to hold the alcohol. The alcohol is renewed through the end of the catheter, at variable intervals. Alcohol possesses considerable antiseptic properties, and has some inhibitory effect upon the spores of the virulent streptococci. Alcohol acts more powerfully where there is a good deal of water in the tissues. He believes it is the simplest method for treating puerperal infection confined to the cavity of the uterus. It must be remembered, however, that all local treatment must be confined to those cases in which the infection is limited to the uterine cavity.

Dr. W. E. FITCH of Savannah, contributed a paper on

TIGHT LACING—ITS RELATION TO UTERINE DEVELOPMENT AND THE DISEASES OF THE FEMALE ORGANS OF GENERATION

In which he called attention to the evil effects of tight lacing. The subject is of special interest to the practitioner as well as to the gynecologist, while to the race it is of serious importance. He thought the importance of the subject as an etiologic factor in diseases of the pelvic organs had been lost sight of in the mad rush in scientific research. Tight lacing, in his opinion, is not the only cause of maldevelopment of the uterus and accessory organs, causing diseased conditions, but one of the chief factors. He then reviewed the anatomy of the female pelvis. The corset is so constructed that when worn it exerts its greatest influence, pressure, from above the brim of the pelvis downward, constricting the abdominal walls, the lower part of the thorax, and pushing inward the costal cartilages and often the seventh and eighth overlapping. The greatest constriction occurs in the immediate neighborhood of the stomach, which, when distended, as after a hearty meal, produces the hour-glass stomach found at times in this class of patients. Compression is so great in most cases as to interfere with the normal peristaltic action of the intestines, thereby producing constipation. Compression in any part interferes with physiologic functions, and therefore the author arrived at the following conclusions:

1. The normal breathing of woman is like that of man, abdominal. Tight lacing changes the type to costal.

2. The pelvic organs normally make a considerable excursion with each respiration. Tight lacing in the upright position checks this motion almost entirely.

3. Sitting or leaning forward lessens intra-abdominal pressure. Tight lacing in these positions greatly increases intra-abdominal pressure.

4. The uterus is displaced downward by tight lacing from one to two and a half inches. The pelvic floor is bulged downward and the circulation rendered sluggish.

5. Uterine development is greatest from the twelfth to sixteenth years. Tight lacing is usually commenced at this, the period of the beginning of uterine development.

Tight lacing produces maldevelopment and displacement of the uterine organs and appendages. Amenorrhea is frequently the result of a poorly developed mucosa and its adnexa, together with faultily developed ovaries, a condition which if neglected, often leads to atrophy or congestion with long continued profuse flow. Dysmenorrhea is a condition which the author thinks is mainly due to maldevelopment of both the uterine appendages and the nervous system, also the muscular and cellular tissues, rendering them inadequate to their physiologic requirements. He said the only benefit obtained in the treatment of pelvic disorders with electricity is mainly due to its efficacy as an aid to more completely develop the much-abused organs. All women who have practiced tight lacing complain of pain on removing the corset, this pain being due to the effort of the organs to assume their normal position.

Dr. J. L. HIERS of Savannah, read a paper on "Malarial Asthenopia."

Dr. A. A. DAVIDSON of Augusta, read a paper on

HYSTERIA.

Hysteria, he said, is a disease wherein the emotional is in the ascendency over the volitional, and characterized by marked and marvelous expressions of the propensities of the idiosyncrasy of the person affected, and is not hysteria necessarily because of any abnormal condition of the uterus, but a manifestation of a morbid and inco-ordinate activity of brain and nerve forces, volition being subordinated, characterized by symptoms motor, sensory and sympathetic, abnormal in nature. In expression it frequently simulates symptoms of various path-

ologic or diseased states, such as hyperesthesia, anesthesia, paralysis, convulsions, general or local suspension of functions, secretory and excretory, etc. The causes of this condition are predisposing and immediate or exciting. Hereditary stands among the first of the former. Family history of phthisic, strumous or neurotic antecedents may confidently be sought; many conditions of unsatisfied nature, long mental worry and physical strain and protracted suspense. Hysteric attacks tell upon the constitution. General muscular spasms are common in women who are the subjects of hysteria, less so in boys, rarely in men. A comatose state is not infrequently met with in them.

In the treatment of hysteria the thing of first importance is to obtain the confidence of the patient that his or her symptoms have been carefully sought out and weighed, that the promise of complete recovery may be held out as the result of careful study of the case, else little can be effected. In seeking the mode of management of this disorder we look away from drugs except in case of complicating intercurrent diseases. This is the rule and principle, but there arise conditions at times which must be met by the energetic use of active medicinal agents. One can not in every instance douche a pail of ice-water in the face of a patient if convulsions be present, though they be hysteric. The patient is a lady of social standing, of integrity and of delicate constitution; what is to be done? Power of moral suasion is not applicable by reason of the patient being in a semicomatose, if not pseudocomatose state, and will not be thus reached. Eminent writers would eschew such antispasmodics as bromids or chloral. Experience leads him to the conclusion that where sleep can be induced and maintained for some hours, a great advantage is gained. This can be effected by using chloroform to offset the paroxysm, continuing the sleep by use of chloral per rectum. The subject wants to be taking medicine and so reconstructives, tonics, etc., may very well be administered, since malnutrition, debility and anemia are favorable to the development and aggravation of hysteric symptoms.

A plan of treatment given by the author is that adopted by Dr. Weir Mitchell of Philadelphia, introduced into this country by Dr. Playfair, which consists of complete isolation of the patient and maintenance in bed, milk being given in increasing quantities. Massage is used in lieu of exercise; brilliant results have thus been secured. However the plan is rarely practicable. If it be impossible to place the patient among non-apprehensive and unsympathetic attendants, for the patient's sake and theirs, the family or those immediately interested should be acquainted with the true condition and educated to deal intelligently with hysteric attacks and phases. Parents should know what their impressionable children read; unlimited open air exercise should be encouraged. The mind should be engaged and kept off the imagined condition of self. The cardinal motive in treatment should be to so environ the patient as to call forth no expressions of an emotional nature, but rather conduce to exercise of reason and will.

INDICATIONS FOR AND ANTISEPTIC TECHNIQUE OF UTERINE DRAINAGE AFTER LABOR AND ABORTION

was the title of a paper by Dr. R. R. KIME of Atlanta. The author stated that when it is considered that at least 30 to 50 per cent. of diseases of women are traceable directly or indirectly to injuries or accidents during or after labor and abortions; that fully one-half of that number were due to infection in some one of its various forms, no apology is needed for presenting this subject. Some use antepartum douches, some postpartum douches, others condemn both. Some use antiseptic methods of prevention, some aseptic methods, others none whatever. Some advise washing out the uterus with strong antiseptics in puerperal infection, some use weak antiseptic solutions, others condemn the use of any. Some advise curetting the uterus in all varieties of infection, some curette only in putrid infection, others condemn the curette in all cases. Some advise abdominal section in severe cases, some perform hysterectomy, others condemn such operative measures and resort to vaginal drainage by incision as a life-saving measure. Some advise stimulants in large quantities, some depend upon strychnia, quinin and nourishment, while others kill their patients with the coal tar group of antipyretics. Some use the serum treatment, some the nucleins, others fail to get good results from either. Some administer opiates in full doses, some advise salines, while the author favors elimination and drainage. Happy is the man that can judiciously select and apply to each individual case such treatment as will not only save life, but conserve the generative organs for future physiologic functions.

In the treatment of puerperal infection, the practitioner must consider the anatomic relations and physiologic functions of the female generative organ. The author does not believe that all cases of puerperal infection are due to contamination by physician or nurse, nor that the physician can always prevent such infection. We have sufficient clinical evidence to prove that where a uterus fails to properly drain itself, remaining large and flabby, a blood clot, portions of placenta, or a cotyledon is retained, infection occurs from putrefaction and absorption of uterine contents. Such cases are usually sapremia or putrid infection, but may be a mixed or true septic infection, due to the presence of septic germs in the genital tract previous to confinement. In cases of septic infection the author believes that the curette and gauze tampon have killed more patients than they have saved. When an active puerperal septic condition exists long enough to produce constitutional and local symptoms and signs sufficient to establish a diagnosis, the currette can not reach the diseased parts on account of the germs having extended beyond the endometrium into the uterine walls, blood vessels and lymphatics, and in rapid septic cases has extended so far that even hysterectomy is not justifiable in but few instances. He cares not if small portions of adherent placenta or cotyledon be present, efficient drainage will eliminate the toxins sufficient to wait for nature to separate these structures far more efficiently than the curette, when they can easily be removed by forceps without traumatism of the parts and with greater safety to the patient. The gauze tampon should never be used in a puerperal septic uterus except to check hemorrhage. So far as the present treatment is concerned, he considers uterine and alimentary drainage and elimination the most potent factors at our command. Uterine drainage is secured by use of drainage tubes and strips of gauze or wicking. The tube should be removed and uterus irrigated once or twice in twenty-four hours in severe cases, being governed by pulse and temperature. If they rise it is an indication for irrigation or that the drainage is obstructed.

As to drainage in cases of incomplete abortion, there are different conditions to deal with. The author limits the term abortion to interruption of gestation any time prior to the complete formation of placenta. At least 90 cent. or more of cases of infection occurring during or after abortion are putrid infection, hence easier controlled and with less demand for drainage. If an active septic infection occurs, then drainage is demanded even in cases of abortion. The dangers and contraindications to the use of the curette and tampon in septic cases increase in proportion to the advance in pregnancy and the increase in size and vascularity of the pelvic organs. While the author advocates an antiseptic gauze uterine tampon after curetting the uterus in cases of abortion, it is to act as a surgical dressing, prevent further infection, check hemorrhage, stimulate uterine contractions, and not for the purpose of drainage. The tampon should be removed in twenty-four to forty-eight hours and not repeated. If after gauze is removed there is elevation of pulse and temperature with constitutional and pelvic disturbances, then drainage and elimination are indicated.

The following officers were elected for the ensuing year: President, Howard J. Williams of Macon; first vice-president, J. G. Hopkins of Thomasville; second vice-president, I. H. Goss of Athens.

Place of meeting, Macon, the third Tuesday in April, 1899.

PRACTICAL NOTES.

Analgesic Application for Burns.—Vergely of Bordeaux, in burns of the first and second degree, covers the parts with a thick layer of paste of calcined magnesia and water, letting it dry on, replacing, as any becomes detached, by fresh paste. Pain ceases immediately, and the wounds heal without leaving any traces. Another treatment consists in the use of potassium nitrate as a refrigerant, in the form of baths or lotions. If a burn on the hand or foot is placed in a basin of water to which a few teaspoonfuls of potassium nitrate are added, the pain ceases. After a while, as the water heats up, the pain returns; then add more potassium. Continued for two or three hours, it frequently dispels the pain, and often prevents blisters. Compresses steeped in a saturated solution has the same effect.—*Am. Therapist.*

Lactophosphate of Lime for Acne and Furunculosis.—Purdon has been most successful with the treatment of acne and furunculosis with the syrup of the lactophosphate of lime. He regards it as "an agent of nutrition, and thinks it is appropriately given

in the conditions above referred to, as they are evidences of depraved nutrition." Be that as it may, the administration of this drug, coupled with the advice to the patient to wear Balbriggan linen undershirts, will prevent outbreaks of acne which occur from time to time on the shoulders and chest. If it is thought best to add cod-liver oil, the following prescription will be found palatable: Acaciæ, aquæ, syr. calcis lactophosphat., ol. morrhuæ, ol. amygd. amar. Rub the gum, water and syrup together until a smooth mucilage is made, then gradually add the cod-liver oil with constant stirring, and lastly, the essential oil of bitter almonds. Thus made each tablespoonful of cod-liver oil and syrup of the lactophosphate of lime contains 4 grains of lactophosphate of lime and 50 per cent. of cod-liver oil.—*Dublin Journal of Medicine*, February.

Epithelioma of the Face Treated with Arsenious Acid.—Dr. Hermet, before the Paris Dermatological Society, reported a successful case of the above nature. The patient went to him in October, 1897, for the treatment of an epithelioma of the face. Arsenious acid was applied, the surface of the ulcer being left exposed to the air after the method of Czerny. The new growth was destroyed by the early days of January, 1898, and cicatrization was completed by February. The patient had previously been treated by chlorate of potassium without the slightest benefit. Czerny's method employed by Dr. Hermet consists in using three solutions of arsenious acid in equal parts of water and ethylic alcohol. The first solution, of the strength of 1 in 150, is applied to the ulcerated surface. The second and third, which are stronger, are applied to the scab. The ulcer is swabbed with the solution every day and excessive pain is kept in abeyance by a hypodermic injection of morphia. When the scab falls off the raw surface is treated as an ordinary wound. The case was reported to the society in March.—London *Lancet*, March 26.

Differentiation of Brain Tumors.—(From L. Bruns' address at Moscow Congress, *Wien. klin. Woch.*, 1897, 45, 46.) Although many of the symptoms of frontal and cerebellar ataxia are identical, he considers that monoplegia, Jacksonian convulsions, tonic deviation of the head and eyes to one side, and especially motor aphasia, denote frontal ataxia. On the other hand, paraplegia and alternating hemiplegias, visual paralysis on the side toward the tumor with crossed hemiplegia, double paralysis of the optic muscles and paralysis of the facialis and acusticus, distinguish cerebellar ataxia. He does not lay much stress on homonymous hemianopsia unless it exists on the right side from the first, combined with alexia and optic aphasia, when it indicates a tumor in the medulla of the left occipital lobe. He concludes by recommending percussion as extremely valuable. When the sensitiveness, tympanism and cracked pot noise are pronounced and extensive, they indicate plainly the general diagnosis of tumor, and when distinctly localized they point to its seat with precision, especially when the indications of the percussion sounds coincide with the symptoms observed. In the difficult differentiation of tumors in the central convolutions and neighborhood, distinctly circumscribed percussion sounds will often help more than even the cerebral symptoms, as they are scarcely possible unless the tumor is located at least near the cortex.

Kadner's Method of Investigating the Function of the Stomach, is described in the *Deu. med. Woch.* of March 31. It consists essentially in the test breakfast followed, just before the contents of the stomach are withdrawn, with the ingestion of 100 of a solution of sodium phosphate. The mixing of the solution with the test meal is facilitated with a few movements of the trunk, and the contents of the stomach are then withdrawn with ease. He has frequently used this method with great success in his practice, especially with ladies, and recommends it as simple and reliable. The phosphoric acid in the aspirated contents is then precipitated with an uran. solution, so concentrated that 25 c.c. precipitates all the acid out of 25 c.c. of the phosphate solution. The latter is saturated with acid and the amount of free acid in the aspirated contents is indicated with a one-tenth sodium (Lauge) solution and methyl orange. His formula for the phosphate solution is, 10 $Na_2HPO_4 + 12\,H_2O$ in 500 water with 28.10 c.c. normal salt solution; the mixture filled up to 1000. The formulæ for the tests are, $m = 100\,(u - u') \div u'$, in which m = the amount of stomach contents being examined; u = 25 (amount of the uran. solution corresponding to 25 of the phosphate solution); u′ = number of c.c. of the uran. solution required for 25 of the aspirated contents; $s = n\,(100 - m) \div m$, in which n = the number of c.c. of the one-tenth sodium solution required for 10 of the mixture to turn the methyl orange brown; s = the number of c.c. of hydrochloric acid in 10 c.c. of the original contents of the stomach.

Progress in the Immunization Treatment for Diphtheria at Berlin Hospitals.—When a case of diphtheria occurred in the surgical wards of the Kaiser and Kaiserin Friedrich Spital, of which Professor Baginsky is the Director, he immediately had all the other children immunized. In private families, when a case of diphtheria occurs, he does not consider immunization so necessary. Prompt segregation often prevents the disease from spreading to other members of the household, and as the doctor in such cases is in daily attendance, the serum treatment may be begun as soon as the first suspicious symptom is noticed in another child. Antitoxin, when given thus early in the disease, he considers an unfailing remedy. In patients injected during the first forty-eight hours of the disease there is absolutely no mortality. As Professor Heubner has for some time made it a practice to immunize all the children in his wards at the Charité every three weeks, it may be seen what a prominent place immunization has taken here during this last year. For a while Professor Heubner had to give up his immunizing injections because the hospital directorate thought it savored too much of experimental investigation on the children, and might arouse popular indignation. They were resumed after an interval of only two months, however, as it had become clear that they were wonderfully efficient in preventing diphtheria in the wards of the hospital. Absolutely no inconveniences have resulted from the practice.—*Medical News.*

Success of Local Frigor Therapeutics in Tuberculosis.—The refrigerating well at Geneva with its unparalleled low temperatures, —110 C., about —100 F., into which patients are lowered (*vide* JOURNAL, xxvii, 548) is chiefly remarkable on account of the ravenous appetite that follows the seances. This effect is particularly desirable in tuberculosis, but the treatment is too heroic for this disease. Letulle and Ribard now announce that by modifying the method and applying the refrigerating process locally for twenty to forty minutes they have succeeded in every case in restoring the appetite to such a degree that the patient starts upon a new existence, both physically and morally. They apply once or twice a day on the epigastric and hepatic region, a bag containing about two kilograms of solid carbonic acid, which has a temperature of minus 80 degrees C., and evaporates without moisture or residue. The skin is protected with a layer of cotton, and the peculiar effect is observed that it does not grow cold, but retains a temperature of plus 25 C., showing that it is diathermane, while the organs within evidently feel the effect of the cold much more, and the organism rallies to protect them. It first utilizes the available stores on hand, as is shown by the fact that well nourished persons do not experience the same degree of hunger at first as those more emaciated. Their report in the *Bull. de la Soc. Méd. des Hôp.* for March 24, concludes: "This new crymotherapy, simple, harmless and effective, can not be too warmly recommended, as it is evidently the physician's first duty to ensure sufficient alimentation to his tuberculous patients."

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

Per Annum, in Advance $5.00
Foreign Postage 1.75
Single Copies . . . . . 10 Cents.

In requesting change of address, give *old* as well as new location.
Subscriptions may begin at any time and be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 61 Market Street (Occidental Buildings), Chicago, Illinois.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Henry P. Newman, 100 Washington St., Chicago, Ill., sending him a certificate or statement that the applicant is in good standing in his own Society, signed by the President and Secretary of said Society. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership.

On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the *Editor*, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 61 Market Street (Occidental Buildings), Chicago.

Original communications are only received with the understanding that they are exclusively contributed to this JOURNAL.

SATURDAY, MAY 7, 1898.

THE OBJECTIONS TO INTRAPERITONEAL DRAINAGE.

In a critical review of 1700 cases of abdominal section from the standpoint of intraperitoneal drainage, published by Dr. J. G. CLARK,[1] resident gynecologist of the Johns Hopkins Hospital, the objections to intraperitoneal drainage have been brought forward in a very clear and convincing manner.

Having considered quite extensively the physiology and anatomy of the peritoneum, with a view to bringing out its capacity for the absorption of fluids and solid particles from the peritoneal cavity and for disposing of irritant and infectious material, the following objections to drainage after abdominal section are considered.

Trauma and chemical irritation produced by the drainage material.—The effect of a foreign body upon the peritoneum is to cause endothelial destruction and inflammatory reaction. Anyone who is in the habit of making postmortem examinations will have observed that there is usually a much more intense inflammatory reaction around iodoformized and other forms of drainage than elsewhere in fatal cases of post-operative peritonitis. The action of the foreign body employed for drainage is very often aggravated by the action of the chemical substance, as for instance iodoform, with which the material is impregnated. Any mechanical or chemical irritation of the peritoneum must certainly be looked upon as tending to reduce its resisting powers against infection.

Retardation of healing.—In the drainage chart which Dr. CLARK has constructed from the 1700 cases it is very clearly shown that drainage retards local healing. It can also be observed that the percentage of local suppuration conforms strictly to the rise and fall of the drainage line. These facts may be explained by mechanical injury, but the fact that the discharge from the drainage tract most often contains the bacteria normally found in the skin seems direct proof that they are introduced with the drain or gain entrance afterward. After the removal of the drain healing by granulation tissue, which is necessarily slow, is the only kind of healing that can take place. Hence the drain cases invariably remain much longer in the hospital than the undrained ones.

Drainage not effective in removing fluids and infectious material.—Postmortems show that all forms of drainage are quite frequently without success in removing fluids from the different parts of the abdominal cavity. The artificial efforts to remove fluids by means of the syringe, by means of mopping with pledgets of cotton, or by means of capillary absorption by a gauze drain, are not to be compared with the ability of the peritoneum for absorption. The presence of drainage material handicaps the peritoneum in various ways: the normal currents in the peritoneum are disturbed; the circulation of fluids and foreign bodies toward the diaphragm is interfered with; a reactive inflammation is set up by the drain which limits the action of the peritoneum, and within a few hours the general peritoneum is debarred from participating in the work of absorption, the work being thrown upon the drain, which can only remove fluid from a small pocket. A limited quantity of fluid is removed by the drain during the first few hours, but after that the drain rather acts like a plug by preventing the outflow of fluid, which then accumulates in the independent pockets. In some cases of drainage the drained fluid in CLARK'S cases showed myriads of microbes, while the portion of the general peritoneal cavity walled off by adhesions showed no traces of bacteria. Now, the advocates of drainage cite such cases in favor of the drain, as proving that it limits infection to the drained field, but Dr. CLARK thinks that the better explanation is, that the healthy peritoneum has successfully removed the infection while the drain has failed in its task of removing microbes from the pocket.

It is a general experience that there is a limit beyond which the peritoneum can not resist infection, and abdominal operations during active infection, especially of puerperal type, often terminate fatally, whether drained or undrained.

Infection frequently occurs from the drainage tract.—The bacteriologic investigations made in Dr. KELLY'S wards show that a gauze drain almost invariably becomes contaminated sooner or later, the variety and virulence of the micro-organisms depending upon the cleanliness of the surrounding skin, and to some extent upon the purity of the air. In every instance

[1] Johns Hopkins Hospital Reports, Vol. vii, Nos. 1 and 2, 1898.

of the sixteen tabulated cases in which the intraperitoneal gauze drain was examined bacteriologically organisms were obtained from some part of the drain.

In one hundred undrained cases referred to by Dr. CLARK where there were more or less adhesions, the operation being made for such conditions as tumors, cysts and extra-uterine pregnancy, only one case was complicated by the formation of post-operative pelvic abscess. In one hundred similar cases which were drained eight such undesirable sequelæ occurred. This fact goes far toward proving that the coagula and exuded fluid following these operations seldom suppurate if left to the care of the peritoneum, even though this may be more or less disabled.

Drainage in cases where infectious matter is supposed to be present at the time of the operation, is also shown by statistic studies to be unsatisfactory. In the first place a general review of the bacteriologic conditions in such cases, as pyosalpinx, abscess of ovary, peri-oophoritis, etc., seem to show that infection of the peritoneum from the diseased area at the time of the operation is not likely to occur, because the initial infecting organism has then generally disappeared or lost its virulence.

In the summary of the results in two series, each of one hundred cases of pelvic inflammatory disease, drained and undrained, it is shown that there were eighty uncomplicated recoveries in the one hundred undrained cases and only forty-six in the drained. It may be said that this comparison is not admissible, because the drained cases were probably the more serious. When, however, Dr. CLARK reviews the general abdominal operations in groups of hundreds, with the following drainage percentage: First hundred 74 per cent; second hundred 57 per cent; third hundred 48 per cent; fourth hundred 7 per cent; fifth hundred 10 per cent; and when many undrained cases in the last hundred are identical with some of those drained in the first and second hundreds then the essential difference between the drained and undrained cases would seem to be very slight.

Among the evil consequences of drainage are mentioned post-operative obstruction of the bowel, on account of the matting together of the intestines around the drainage tract, like a tangled skein of yarn; fecal fistulæ following drainage: in the only one in which this occurred in the Baltimore cases the fistula resulted from pressure necrosis produced by the glass tube; vesical complications, such as inflammatory reaction around the drain involving the fundus of the bladder and causing vesical irritation and dysuria; post-operative hernia: from certain statistics gathered by Dr. RUSSEL, one of the Gynecologic Clinic of the Johns Hopkins Hospital it appears, that at least 8 per cent. of the cases in which extensive drainage has been established have been followed by post-operative hernia.

Dr. CLARK, then urges the following measures in order to avoid the supposed necessity for drainage in abdominal operations. These measures are aimed at preventing and removing infection without the drain. 1. Thorough disinfection of the hands. In view of the recognized difficulty, if not impossibility, of thoroughly cleansing the hands, ZWEIFEL'S recommendation of suspending all operations for at least three days after contact with an infectious case, is urged as of value. 2. Control hemorrhage. 3. Avoid bruising or otherwise injuring the tissues. 4. Isolate the general peritoneal cavity during the operation. 5. Preserve the peritoneum. 6. Conserve the bodily heat, because it is generally accepted that resistance to infection is greatly decreased by lowering the temperature of the intestines. 7. Avoid rupture of intraperitoneal abscesses. 8. Irrigate the peritoneal cavity, which should be done after every operation, with normal salt solution, with a view of washing out all foreign matter that is possible. 9. Promote absorption by infusion of normal saline solution into the peritoneal cavity, followed by postural drainage. For this purpose from one-half to one liter of salt solution is introduced into the peritoneal cavity, especially when the operation has been prolonged or the presence of septic matter is suspected and the foot of the patient's bed is elevated 18 inches for the first twenty-four hours after the operation.

There can be no question concerning the first seven of these procedures. The last two may perhaps be open to discussion, especially because many surgeons insist upon dry technic in abdominal operations.

The postural method of draining the peritoneal cavity is recommended: 1. Because stagnating fluids are prevented from collecting in the dead spaces in the pelvis. 2. Infectious organisms are then quickly carried into the normal parts of the body, where they are destroyed before they can increase in number. 3. Toxic substances elaborated by the organisms are diluted and prevented from further injuring the wounded area. Dr. CLARK then presents certain facts that show the value of submammary saline infusions as a therapeutic agent in septicemia, and, finally, after this critical review of all classes of drain cases, the conditions in which drainage may be indicated are reduced to the following:

1. In appendicitis when the peritoneum and tissues adjacent to the appendix are infiltrated with inflammatory products, and when the appendix has ruptured and either cause localized abscess or general peritonitis. A definite objection to drainage in the area of the appendix is the liability of post-operative hernia in this district.

2. Localized collections of pus in the pelvis. Here the abscess sac should be enucleated and the abdomen should be closed without drainage, or it should not be opened from the abdomen if it is possible to enu-

cleate it safely. These cases are the ones especially suitable for vaginal incision.

3. Suture of the intestines. Here a drain should be employed only when there is doubt as to the integrity of the sutures.

4. Excision of fistulous tracts, leading from the intestine to the abdominal wall. In these cases it is safe to pack gauze down to the sutured areas of the intestine, because they are especially prone to break down and re-establish the fistula.

5. Purulent peritonitis. In purulent cases PAWLOWSKY has shown that the general avenues for absorption of fluids in the abdominal cavity are closed, consequently the surgeon must endeavor to supplement them by thorough irrigation of the abdominal cavity and free drainage.

THE ETIOLOGY OF CANCER.

The cause of cancerous disease is one of the questions that has been most actively discussed for a number of years past, and that still remains without a perfectly satisfactory solution. The general medical opinion is possibly inclined to be uncertain between a provisional theory that it is a reversional tissue degeneration and one that is of parasitic or infectious origin. The latter has had the strongest advocacy of late years in one form or another and suspicion that it may be correct, is at present, it may be, predominant.

The latest contribution to the subject is that of Dr. ROSWELL PARK in the May issue of the *American Journal of Medical Sciences*, and like other articles from his pen, it is interesting and suggestive. According to him, in order to attack successfully this problem of the origin of cancer, "pathologists of the future must begin by studying tumor formation in the vegetable world before studying it in animals, *i.e.*, the comparative method of investigation must be adopted." He calls attention to the xylomata or woody tumors, some of which he does not hesitate to call by the name of vegetable cancers, and suggests the possibility of their being directly contagious to the human species, insects acting, it may be, as the carriers of the contagion. In support of this idea he adduces certain facts of the distribution of cancer, and the researches of NOEL, who found a relation between it and vegetable growths. Foresters and excise officials who have to spend much time in shady wood paths, it would seem are especially liable to cancer, as are also those who dwell in wooded districts or shaded dwellings. This fact has not been generally recognized in the etiology of cancer, but it seems worthy of consideration and further investigation as to its universal applicability. It would be, it would seem, worth while to collect more statistics on this point and find whether malignant tumors are increasing as our prairie States become more timbered or decrease with the clearing of the forests in those regions where deforestation is still in progress. In New York, according to the figures of the State Board of Health, quoted by Dr. PARK there has been a steady increase of deaths reported from cancer; 1882 deaths in 1885; 2878 in 1890, and 3454 in 1895, or nearly twice as many as ten years before. It is not probable that the timber distribution alone could account for this difference, and so far as they go these figures give no special support to the theory suggested, but rather indicate that there must be other and still more effective causes at work that are still undiscovered. The possibility of an increasingly malignant contagion is strongly suggested by such statistics and accords with the parasitic theories of the disorder that are coming into vogue.

Dr. PARK gives an interesting review of the studies and theories of the etiology of cancer and divides them into three periods: 1, that of inaccurate observations and erroneous conclusions, beginning with NEPVEAU in 1872; 2, that of accurate observation but of mistaken deduction (the coccidial period); 3, that of iconoclastic doubt, from RUSSELL (1890) to BANTI and NISSER (1894); and 4, that of successful inoculation by the Italian observers RONCALI and SANFELICE within very recent years. From the results obtained by these last it would appear that the infectious nature of cancer has been fairly established, at least within certain limits, and that certain fungi, the blastomycetes, are probably the most active agents of the infection. This accords with the theory of the vegetable origin of the disease, a low vegetable organism and one of a class that has not hitherto been so commonly regarded as containing pathogenic species, being apparently the source of the infection. It is entirely possible, nevertheless, that in the future we may yet find other germs capable of exciting the morbid process under certain conditions, and among them some of those forms that have been from time to time offered as the causative factors. The failure of inoculation experiments is not an absolutely conclusive fact against their active agency, and the cancerous process in cell growths may easily be one that can be set up by more than one kind of irritation.

If cancer is increasing elsewhere at the rate it appears to be in New York State, the question of its etiology and its prevention will before long be well to the fore amongst the sanitary problems that interest our profession.

THE ARMY AND NAVY MEDICAL DEPARTMENTS.

Great interest is naturally felt by the medical profession in the composition and organization of the Medical Departments of the Army and Navy on their war footing, and particularly of that part which will constitute the column of attack upon the Spanish forces in Cuba. The call for volunteers to sustain the National flag has stirred the pulses of many medical men, young and middle-aged, who are earnestly inquir-

ing how their professional services may be utilized. Their questions can be answered readily, for the ranks of the Medical Corps of the Army may be said to be already filled. A board is now in session in Washington, D. C., examining candidates for position in the regular medical service, but this is not a war measure. It is the routine process by which the vacancies occasioned by death and retirement are filled annually, and it would have been in session now irrespective of any declaration of war by this country. The regular regiments have been gathered up from the garrisons of the interior and concentrated at certain points in the South. Each regiment brought with it to the rendezvous its quota of medical officers and members of the hospital corps, and it lies now with the chief surgeon of each division thus aggregated to organize its medical department, under instructions from the Surgeon-General, in the manner most suitable for the service that seems in immediate prospect. There is yet, fortunately, on the active list of the Corps a number of officers who are competent to supervise this work by virtue of having served their apprenticeship with large bodies of troops during the Civil War. In like manner each regiment of State volunteers will bring with it to the rendezvous its surgeon, two assistants and its hospital corps men to be mustered into the United States' service and to be drilled, disciplined and organized under the instructions of the Surgeon-General and the supervision of veteran officers. As these volunteers come mainly from the National Guard it is safe to say that the medical officers of the Guard will not give State governors the opportunity of filling many vacancies by the appointment of men who have not heretofore manifested their military proclivities in a practical way by membership in the Guard. There is therefore no likelihood of an immediate opening for the many who are anxious to serve their country under the Red Cross flag of the Army Medical Department.

Nor does the Navy offer any greater facilities for service. Several cruisers have been extemporized out of ocean liners and these require a medical staff; but the Department, in consideration of a few acting assistant surgeons recently appointed under the authorization of Congress, would be able to fill all the necessary positions if its own ranks were recruited up to the maximum allowed by law. We understand that the only volunteers acceptable to the Navy Medical Department are volunteers to compete for the seventeen vacancies now existing in the Corps. The limit of age for candidates has recently been extended from 26 to 30 years, thus allowing many to compete who have hitherto been ineligible.

Surgeon-General VAN REYPEN'S ambulance ship, the *Solace*, was expected to be ready for sea service by May 3. This vessel is a new departure in naval warfare. We had hospital ships in the War of the Rebellion, but they were merely transports. This is intended to be to the battleships, during an engagement, what the field division hospital is to the line of battle of the Army. She is outfitted with steam launches to convey the wounded from their stations to the comparative quiet and security guaranteed by the flag of the Geneva Convention. The *Solace* has beds for two hundred patients, and in an emergency hammocks can be slung for one hundred additional cases. The after part of the hurricane deck has been set aside as an isolation ward for cases of infectious disease. Change in the construction of war ships necessitating change in the methods of caring for the wounded has been met promptly by the Navy Medical Department.

THE PRESIDENT'S CALL FOR VOLUNTEERS.

The call of the President for 125,000 volunteers gave occasion to military writers to discuss the status of the National Guard, volunteering individually or by organizations and the appointment of officers. Were medical writers to discuss the call they would probably animadvert on the physique of the volunteer and the need for careful medical inspection to ensure that only the right men obtained position in the ranks. This appears to have been provided for by the authorities, for although local medical officers have no doubt passed on the physique of all members of the National Guard, army medical officers have been sent to the rendezvous to inspect the men prior to their muster into the United States service. As the number called out is small compared with the population of the country, only well-grown and perfectly sound men should be accepted. The minimum age for enlistment in the army is twenty-one years. This is as it should be; but the acceptance of volunteers from eighteen to twenty-one will crowd the ranks with immature constitutions which will break down under the strain of war service, giving a large sick list, a heavy death rate and a long pension roll for consideration hereafter. Britain accepts youths of this age, but she keeps them at the home stations, as at a training school, until they have attained their maturity.

The danger from yellow fever is another subject which runs in the minds of medical men in this connection. The newspapers have discussed it so freely that every volunteer in considering his risks thinks less of Spanish bullets than of this dangerous pestilence. Disease is usually more fatal to armies than battlefield casualties. For every man who was killed or died of wounds during the civil war two men died of disease, although yellow fever contributed but little to the total. It was expected that our armies would be more than decimated by this fever, but they were not. New Orleans was kept free free from fever, although garrisoned by unacclimated men from the

North. Troops at New Berne, Hilton Head, Key West, Wilmington and several other points became infected, but military discipline and military sanitation prevented any spread of the disease. It is well to enlist regiments of immunes for service in Cuba, and particularly to garrison any infected town, but we are of opinion that the danger to our troops has been unnecessarily "exploited" and exaggerated. It should be remembered that the discipline and sanitary administration of a military camp afford the very means for preventing the occurrence of the disease or stamping out its infection if it should be introduced. When the city of Memphis, Tenn., suffered so severely in 1879, those of the inhabitants who moved into camp at a distance of a few miles were preserved, although the government of the camp was not as strict as it should have been. The surgeon-general of the army has made yellow fever the special study of his life, and it is certain that every precaution will be taken to prevent disability and death from its infection.

THE JOURNAL SPECIAL TRAIN TO DENVER.

The Journal Special Train will leave Chicago, Saturday, June 4, at 11 P.M., via the Chicago, Burlington & Quincy Railroad, arriving in Denver Monday morning 7 A. M., in time for the meeting of the American Academy of Medicine, the American Medical Editors' Association and other medical organizations holding sessions on Monday.

The "Special" will run through. Tickets will be good for thirty days. The rate will be one fare and $2 for the round trip, the most favorable rate yet granted the ASSOCIATION.

PROGRAM OF SECTIONS.

The Secretaries of Sections will, if they have not already done so, please forward program of their Section immediately to the JOURNAL office. This year we desire to get out the program on time, and it will not be the fault of the JOURNAL office if it is not ready.

CORRESPONDENCE.

The Yellow Fever Amebæ.

CHICAGO, May 1, 1898.

To the Editor:—General Sternberg is in error if he suggests that I have not taken the trouble to read his report on yellow fever which he gave me personally after having discussed the question with him (1895). I have not only studied his very valuable but not fruitful researches, but have expressed also the highest respect for his investigation in my papers.

The report of Dr. Councilman, as I now see, is the most valuable work done to this time on the pathology of yellow fever. I had not at this time, to my regret, given it enough weight; but I may be excused, as he himself rejected the idea of parasites and declared his finding as a curious form of necrosis, sometimes affecting only portions of the liver cells. As Councilman found the same masses in rapidly advancing cases of cirrhosis of the liver, in phosphorus poisoning and in other cases of rapid fatty degeneration, particularly in cases of yellow atrophy of the liver, the observation was not retained in my mind as possibly of a higher value than the author himself laid upon it. Indeed, I did not remember it at the time. I commenced my own researches at the commencement of this year and found in the liver the same startling alterations described so well, but misinterpreted, I think, by Councilman. Permit me to explain in brief.

1. I have never seen such forms of partial necrosis of liver cells in any of the cited liver diseases; the amyloid and colloid affections of the liver are quite different; possibly only some forms of acute red atrophy of the liver may contain similar bodies, described by me long ago as yellow atrophied liver cells (Klebs, "General Pathology," T. 2., p. 364, Table 21 and Fig. 32). Looking at this picture, I can not refrain from the suggestion, that amebæ were also present here. Of these oval and egg-shaped bodies, some contained a nucleus, some did not. The preparation was stained with carmin-alum. These bodies are found in the interstitial tissue and between the liver cells, the protoplasm of the latter showing a fine network, very similar to the yellow liver cells. I remarked (l. c., p. 368): "Whether in this case other forms of parasites, for instance, 'gregarinæ,' are present for which the yellow bodies could be taken. I do not venture to decide."

2. As to my opinion upon these bodies in the yellow fever liver, I may be permitted to repeat the following remark from my paper: "The sharply defined form of these bodies, their different staining, their disposition in the interstitial tissue and in the liver cells, their forming of vacuoles and pigment in the more advanced stages, certainly indicate them to be parasites of the class of protozoa; but having only dead material before me, I will not decide the question, unless they could be found in other organs in physiologic connection with the liver."

With what is clearly expressed, that only a detection of the same bodies in the parts connected with the liver or stomach and duodenum would give a higher degree of probability to my suggestion, Dr. Sternberg himself pointed out to me the affection of these organs as a constant feature of yellow fever. So I was very much gratified to find in the inflammatory areas of these organs quite the same bodies and also sporulating forms. It is not justifiable, therefore, to declare my opinion not tenable, as it is based on much more extensive observations than Councilman's.

3. I will repeat here from my paper, that this new theory of yellow fever as a protozoic affection "must be supported by the examination of yellow fever patients." EDWIN KLEBS.

Foreign Bodies Removed from Abdomen.

VIROQUA, WIS., April 19, 1898.

Dr. M. R. GAGE, Phoenix, Ariz., *Dear Doctor:*—Aware of the interest you have hitherto taken in the case of Miss Clara Condit (the late Capt. Condit's daughter), now an inmate of our County Asylum, I have thought best to put you in possession of some facts of late development regarding the unfortunate woman which, I think, will prove of interest to you. Saturday morning last I was requested by Dr. Morley of this place, physician in charge at the asylum, to see with him the patient referred to. The nurse in charge informed us that early that morning the patient called her attention to a small swelling in her right upper groin which was painful and interfered with her movements more or less, and also reiterated the statement made a month or six weeks before that she had swallowed two teaspoons, a table knife, and the glass tube of an ordinary thermometer broken into fragments for convenience in swallowing. Her statement first made seemed to the nurse, superintendent and wife to be so improbable that but little attention was given to it especially in view of the fact of the absence of gastric and intestinal symptoms from first to last, with the exception of an occasional attack of diarrhea

with "black looking stools," to use the nurse's expression; her appetite was good, pulse and temperature normal, and she had the freedom of the ward at will.

Our examination disclosed at the upper margin of the right groin an oblong swelling, hard, tender to the touch, of a dusky red color, of small dimensions, and nonfluctuating; from right to left obliquely upward a hard, resisting, oblong shaped mass could be distinctly outlined without subjecting the patient to any pain to speak of. In answer to my question whether she had swallowed what she told the nurse four or six weeks ago she had, her reply was affirmatively.

We rather concluded that a foreign body of some kind was located in the region alluded to, and in order to determine its nature, metallic or otherwise, thought best to make a needle exploration; this proved the lodgement of a metallic body of some kind, probably a spoon large or small. The pulse and temperature taken at this time was normal, and abdominal palpation revealed nothing of consequence. The following day the patient was chloroformed, an incision of the tumor made by Dr. Morley and a table knife ten inches long, five-eighths wide, presenting blade end first was drawn through the wounds without difficulty; it was blackened, with a somewhat serrated edge and had adhering to it a number of raisin seeds. No fecal matter or odor escaped from the cavity in which the implement was lodged showing, it seems to me, no communication with the lumen of the cecum. The operation, happily, was extraperitoneal. I, therefore, see no reason why the patient should not recover from its effects, and, moreover, had not the conditions of things been discovered at the time already stated, nature would have anticipated the knife by an opening within a few days through which the foreign body could have been readily extracted. It is rather surprising that such a foreign body received into the stomach by accident or design, could traverse almost the entire length of the intestinal canal, pass through the ileo-cecal valve into the cecum, there lodge for a time, finally to penetrate its coats into the ileo-cecal fossa and become imbedded in exudate tissue from time to time shutting it off from the abdominal cavity, without causing a train of symptoms indicative of mischief. In this case, however, there were as stated absolutely no symptoms attending the travels of the knife as far as it went in the intestinal canal.

Yours truly, WILLIAM A. GOTT.

Section on Cutaneous Medicine and Surgery.

SAN FRANCISCO, CAL., April 23, 1898.

To the Editor:—In the issue of the JOURNAL of April 9, 1898, there is published the masterly address of Dr. A. Ravogli, the chairman of the Section of Cutaneous Medicine and Surgery, delivered at the forty-eighth annual Meeting of the ASSOCIATION, in which there appear one or two inaccuracies, which would work an injustice to the session of the Section at the Meeting of the year 1895, at Baltimore, Md., and of which I had the honor of being chairman, and furthermore might incidentally reflect unfavorably upon the Pacific coast unless corrected. I would have written to my friend, Dr. Ravogli, and I feel assured that, after his attention had been called to the matter, no one would have been more willing to rectify the errors which no doubt crept unwittingly and unnoticed into his address, than the Doctor himself, but as you as editor corroborated his statements, with which issue is taken here, I feel it incumbent upon me to kindly ask of you the insertion of this communication in the next number of the JOURNAL, so that justice may be done all around. The inaccurate statements complained of occur in Dr. Ravogli's address on page 814 in the following phrases, to-wit: "At the meeting in San Francisco in 1894, Dr. Ohmann-Dumesnil of St. Louis, was chairman, and Dr. L. F. Frank of Milwaukee, was secretary. In 1895 Dr. E. [meaning A. E.] Regensburger of San Francisco, was chairman, and Dr. D. H. Rand of Portland, Ore., was secretary. No report of the work of this Section can be found in the JOURNAL for these years and not even the programs appear in the records."

The foregoing assertions of the Doctor are strengthened by your foot note to the effect that "None of the papers were received by the JOURNAL.—Ed." These statements, if allowed to go unchallenged might lead anyone unfamiliar with the facts of the case to believe that this coast took no interest in dermatology, or at all events in the Dermatological Section of the ASSOCIATION. This is very far from being so. While I admit that the session of 1894 at San Francisco was not as interesting as it might have been, yet there was a good attendance and when we consider that both the chairman and secretary were absent from the session, we must concede that the Section did quite well under those circumstances. As regards the meeting of the Section in 1895 at Baltimore, I can safely affirm without fear of contradiction, that the number of papers presented and read, the character of the discussions, and the high scientific standard and practical value of the work accomplished will compare favorably with that of any other session of the Section. Dr. Duhring of Philadelphia and Dr. Bulkley of New York, who were present, were more than pleased. Dr. Bulkley said that some of the work, especially referring to a paper on psorospermosis cutis by Dr. Gilchrist of Baltimore, was some of the best ever presented in the Section. Other excellent essays were contributed by Drs. Bulkley and Gottheil of New York, Ohmann-Dumesnil of St. Louis, Mathews of Louisville, Ky., and Mathews, as well as the chairman's address by your humble servant. Dr. Ravogli himself sent in a very creditable production on "Ulcerative Syphilide of the Pharynx," which with some other papers read there is printed on page 102 of the *Journal of Surgery*, 1896.

How Dr. Ravogli could have forgotten all these facts I am unable to say. Now that his attention has been called to them he unquestionably will admit their correctness. Most of these papers and many others read before the Section at that session were printed in the JOURNAL. A program of the work of that session, although not perfect, can be found in the JOURNAL of April 6, 1895, page 526, and still more complete ones in subsequent numbers of that publication.

Hoping that these explanations will set things aright and give credit where it is due, I remain, Yours fraternally,

ALFRED E. REGENSBURGER, M.D.

Parovarian Cysts.

MILWAUKEE, WIS., April 28, 1898.

To the Editor:—I notice, in the last issue of the JOURNAL, reference made in regard to Beyla's and Kelly's cases of enucleation of parovarian cysts without the removal of the tubes and ovaries, with the remark that those are the only cases ever reported.

I have reported one case in the Transactions of the Wisconsin State Medical Society, 1897.

The operation was done in July, 1895. Two parovarian cysts were removed; the right one was about the size of a small cocoanut. It was very easily enucleated. The top of the broad ligament was torn open with the finger and the cyst readily shelled out intact. The one in the left broad ligament was also enucleated, but with greater difficulty. Both were successfully removed without interfering with the tubes and ovaries. The patient made an uninterrupted recovery.

Yours respectfully, F. SHIMONEK, M.D.

The "Inverted Pyramid of Accumulated Honors."

SHELBYVILLE, IND., April 30, 1898.

To the Editor:—I do not wish to be hypercritical, nor to be considered an *old fogy*, but I have often been painfully im-

pressed with the thought that perhaps too many of the valuable papers in the JOURNAL are over-burdened with the various titles and honors that have from time to time been conferred on the author.

When I read an article in a medical journal I like to know the name of the writer, especially if there is anything new or original in it, but I confess it makes me *tired* to see a long list of colleges and hospitals he may have performed brief service in, as well as the various societies into whose *not exclusive* halls he has been admitted, hanging like an excrescence to his ethical title of M.D., in the shape and size of a huge *Abracadabra.*

W. GASTON MCFADDEN, M.D.

ASSOCIATION NEWS.

Section on Practice of Medicine.—All members of the AMERICAN MEDICAL ASSOCIATION expecting to attend the banquet of the Section on Practice of Medicine are requested to notify Dr. S. A. Fisk, Chairman, 37 Eighteenth St., Denver, Colo.

The Journal Train.—Arrangements have been perfected with the Burlington Route for the Journal Special to the annual meeting of the AMERICAN MEDICAL ASSOCIATION, to be held at Denver, Colo., June 7 to 10, 1898, leaving Union Passenger Station, Canal and Adams Streets, Chicago, and to be run on the fast schedule shown below:

Schedule of Burlington Route. Leave Chicago 11 P. M., June 4; Mendota 1:40 A.M., June 5; Galesburg 4:10 A.M., June 5; Burlington, Iowa, 5:40 A. M., June 5; Fairfield 7:25 A. M., June 5; Ottumwa 8:10 A. M., June 5; Chariton 9:50 A. M., June 5; Osceola 10:35 A. M., June 5; Pacific Junction 2:10 P. M., June 5; Lincoln, Neb., 4 P.M., June 5; arrive at Denver 7 A.M., June 6.

Equipment. The Journal Train will run solid from Chicago to Denver and will be composed of the Pullman Company's finest equipment. It will carry a Burlington Route dining car through to Denver, in which meals will be served *à la carte*, special attention being paid to this part of the service.

Rate. A rate of one fare plus $2 from Chicago, St. Louis, Peoria, St. Paul, and all territory within the Western Passenger Association, has been secured. Net fare from Chicago and return, $31.50. Tickets may be purchased June 2, 4 and 5 at your point of departure, and are valid for passage to final destination point in Colorado up to and including June 7.

Special forms of tickets will be used and purchaser may begin return trip on any date desired between June 12 and July 6. Railroad passage and Pullman tickets may be obtained at any Burlington Route ticket office. Chicago offices are located at 211 South Clark Street, corner of Adams, and at Union Depot Passenger Station, corner of Canal and Adams Streets.

The hour of departure, 11:00 P.M., is most convenient, as it will enable passengers on trains from the East to arrive in Chicago in ample time to make connections with the Journal Train. The schedule will also allow delegates throughout Iowa to meet the train at convenient hours, and will arrive at Denver at an hour which will enable the members of associations other than the AMERICAN MEDICAL, which hold their meetings previous to its meeting, ample time to attend them.

Sleeping car rates are $6 for a double berth from Chicago to Denver. Two persons can occupy a double berth, if they desire, making the cost $3 for each person.

The entertainment of members and their families is being planned on an elaborate scale, and the committee promises all who come a most enjoyable time and a meeting full of scientific interest and social entertainment unsurpassed. Denver is an interesting city and the State offers many and varied attractions to visitors. Local excursions are being arranged to take place after the meeting, that all may have ample opportunity of visiting various points of interest in the State and seeing the best scenery of the Rocky Mountains.

A complimentary excursion has been arranged to Colorado Springs and Manitou, which will enable the delegates and friends to visit Pike's Peak, Ute Pass and "Garden of the Gods."

Information regarding the Journal Train will be promptly furnished in reply to application by letter or telegram addressed to City Passenger Agent Frank E. Bell, 211 South Clark Street, Chicago, who will also reserve sleeping car space and furnish tickets.

Trans-Mississippi Exposition.—No doubt many of the members and their friends will wish to visit the Trans-Mississippi Exposition at Omaha on their return. In order to permit of this, arrangements have been made for a stop-over as long as desired, up to the time limit of the tickets purchased for the Journal Train. A cordial invitation is extended the members and their families, by a committee appointed by the leading physicians of Omaha, for the purpose of extending to them the hospitalities of the city, and also by the Medical Director of the Exposition, Dr. E. W. Lee, to make the hospital their headquarters while on the grounds, where every courtesy and convenience will be arranged for their comfort.

Section on Ophthalmology.—AMERICAN MEDICAL ASSOCIATION, annual meeting at Denver, Colo., June 7–10, 1898.

Chairman's Address.

The Percentage of Color Blindness to Normal Color Vision as Computed from 3019 Cases, by J. Aloysius Miller, Houston, Texas. Discussion opened by Frank Allport, Chicago, Ill.

Glioma of the Retina, by J. L. Thompson, Indianapolis, Ind. Discussion opened by J. F. Fulton, St. Paul, Minn.

A Case of Mathematically Perfect Eye, by Geo. M. Gould, Philadelphia, Pa. Discussion opened by Henry Gradle, Chicago, Ill.

SYMPOSIUM, USES OF ELECTRICITY IN OPHTHALMOLOGY.

a, Some Uses of Electricity in Ophthalmic Practice, by H. M. Starkey, Chicago, Ill. *b*, Galvanism in Choroiditis, by R. F. Le Mond, Denver, Colo. *c*, The Uses of Electricity in Ophthalmology, by S. Lewis Ziegler, Philadelphia, Pa. Discussion opened by C. H. Williams, Boston, Mass., and by W. H. Wilder, Chicago, Ill.

The Treatment of Corneal Ulcers with Pure Oxygen, by T. H. Woodruff, Chicago, Ill.

Phlyctenular Keratitis, by D. S. Reynolds, Louisville, Ky.

An Easily Overlooked Form of Keratitis, by Henry Gradle, Chicago, Ill. Discussion opened by J. J. Kyle, Marion, Ind.

The Treatment of Blepharitis with Formalin, by Herbert Moulton, Ft. Smith, Ark.

The Frequency of Senile Opacity in the Crystalline Lens and the Proper Definition of Cataract, by Edward Jackson, Philadelphia, Pa. Discussion opened by E. C. Rivers, Denver, Colo.

Accidents in Eye Operations, by F. C. Heath, Indianapolis.

Bacteria one of the Chief Etiological Factors in Diseases of the Eye, by Ellet, Orrin Sisson, Keokuk, Ia.

Conclusions from Some Clinical and Bacteriological Experiments with Holocain, by Robert L. Randolph, Baltimore, Md. Discussion opened by H. V. Würdemann, Milwaukee.

Five Cases of Congenital Bilateral Dislocation of the Crystalline Lens in Three Successive Generations, by Edward F. Parker, Charleston, S. C.

An Additional Case of Double Microphthalmus, by Cassius Wescott, Chicago, Ill. Discussion opened by G. E. de Schweinitz, Philadelphia, Pa.

The Use of Aluminium for an Artificial Vitreous, by D. C. Bryant, Omaha, Neb. Discussion opened by Herbert Claiborne, New York, and L. Webster Fox, Philadelphia, Pa.

Gonorrheal Iritis and Conjunctivitis, by Frank S. Milbury, Brooklyn, N. Y. Discussion opened by F. J. Sampson, Creston, Iowa.

Iritis Spongiosa, by Adeline E. Portman, Washington, D. C.

Serous Cysts of the Iris, by Louis F. Love, Philadelphia, Pa. Discussion opened by Wm. L. Dayton, Lincoln, Neb.

Report of a Case of Hemorrhagic Retinitis (idiopathic?), by Vard H. Hulen, Galveston, Texas.

A New Perimeter, by C. H. Williams, Boston, Mass.

Report of a Case of Quinin Amaurosis, by J. M. Ball, St. Louis, Mo.

Some Severe Cases of Tobacco and Quinin Amblyopia, by E. C. Ellett, Memphis, Tenn.

Some Results in Cases of Tobacco Amblyopia, by L. J. Lautenbach, Philadelphia, Pa.

Amblyopia from Auto-Intoxication, by Henry B. Young. Burlington, Ia.

The Clinical Aspects of Toxic Amblyopia, by Casey A. Wood, Chicago, Ill.

The Pathology of Toxic Amblyopia, by G. E. de Schweinitz, Philadelphia, Pa. Discussion opened by F. C. Hotz, Chicago, Ill., and W. H. Wilder, Chicago, Ill.

SYMPOSIUM; THE TREATMENT OF AFFECTIONS OF THE LACHRYMAL APPARATUS.

The Conservative Treatment of Epiphora and Affections of the Lachrymal Apparatus, by Samuel D. Risley, Philadelphia.

Treatment of Disorders of the Lachrymal Apparatus, by Leartus Conner, Detroit, Mich.

The Treatment of Suppurative Dacryocystitis, by Arthur Prince, Springfield, Ill.

The use of Large Probes in Strictures of the Lachrymal Duct, by G. M. Black, Denver, Colo.

The Value of Large Probes in the Treatment of Strictures of the Nasal Duct, by H. O. Reik, Baltimore, Md.

On the Use of Probes in Affections of the Lachrymal Apparatus, by F. M. Chisolm, Baltimore, Md.

Some Experience with Extirpation of the Lachrymal Sac, by J. E. Colburn, Chicago, Ill.

Extirpation of the Lachrymal Sac and Gland, by C. R. Holmes, Cincinnati, Ohio. Discussion opened by B. E. Fryer, Kansas City, Mo., and Chas. Robertson, Davenport, Ia.

Report of a Few Cases of Acute Glaucoma, by H. Bert Ellis, Los Angeles, Cal.

A Case of Hereditary Glaucoma, by H. Harlan, Baltimore.

Glaucoma and Detachment of the Retina, by Wm. Cheatham, Louisville, Ky. Discussion opened by J. L. Thompson, Indianapolis, Ind., and John Chase, Denver, Colo.

Regular Astigmatism is not Always Congenital, Neither is it Unchangeable, by Wm. C. Bane, Denver, Colo. Discussion opened by S. B. Risley, Philadelphia, Pa.

The Field of Fixation or Home of the Guiding Sensation, by G. C. Savage, Nashville, Tenn. Discussion opened by F. B. Eaton, San José, Cal.

The Dynamics of the Extrinsic Ocular Muscles as the Result Obtained by the Examination of 100 Medical Students, by Flavel B. Tiffany, Kansas City, Mo.

Eye Muscle Tests with Colored Glasses, by F. B. Eaton, San José, Cal.

A New Element in the Etiology of Strabismus, by Geo. T. Stevens, New York, N. Y.

Unsatisfied Sexual Desire a Cause of Heterophoria in Both Sexes, by L. R. Culbertson, Zanesville, Ohio. Discussion opened by J. M. Bannister, Ft. Leavenworth, Ark., and D. W. Stevenson, Chicago, Ill.

Epithelial Lip Grafts for Large Wounds of the Conjunctiva, by F. C. Hotz, Chicago, Ill.

Recent Experience with Advancement of the Recti Muscles, by C. H. Beard, Chicago, Ill.

Additional Notes on the Employment of Absorbable Sutures in the Operation of Looping the Tendons of Ocular Muscles, by J. O. McReynolds, Dallas, Texas. Discussion opened by O. Dodd, Chicago, Ill.

Variability of the Visual Field in the Case of Disease of the Heart, by W. F. Southard, San Francisco, Cal.

Preparation of Macroscopic Eye Specimens, H. V. Würdemann, Milwaukee, Wis.

Report of Some Cases of Hereditary Ectopia Lentis, by W. H. Wilder, Chicago, Ill.

Remarks on De Zeng's Refractometer, by Frank Allport, Chicago, Ill.

SOCIETY NEWS.

American Medical Temperance Association.—The eighth annual meeting of the American Medical Temperance Association will be held at Denver, Colo., June 8, 1898. The meeting will be confined mostly to the annual business of the society, accepting the address by the President, Dr. N. S. Davis of Chicago. The members of this society are all members of the AMERICAN MEDICAL ASSOCIATION, and the various papers which naturally would be read before the society are now presented and read before the different Sections This is thought to be more practical, in attracting attention and discussion, and bringing out the facts before a wider audience. This association is composed of physicians who wish to study the alcoholic problem above all theory and prejudice, and who believe there is a medical and scientific side of this subject not well known, but of the greatest practical interest. This society has already a membership of two hundred physicians, and is modeled after the English society which has a membership of six hundred medical men. France, Germany and Switzerland have similar societies, and the membership comprises many of the leading medical teachers of the world. These societies have all the same end and purpose, viz: to ascertain the value of alcohol as a remedy, and its physiologic action in health and disease. It is believed that medical men can not only decide these questions but can point out solutions of the many vexed problems of alcohol as a beverage, and its effects on society and civilization, and also the practical measures to break up the evils which follow from it. The American Association, like the other societies of Europe, simply aim to ascertain the facts about alcohol, irrespective of all conclusions, and are confident that when the profession takes up this subject in this spirit the most practical results will follow. A "Bulletin" is published giving the new facts along these lines. All members of the AMERICAN MEDICAL ASSOCIATION who would like to help on this work are most cordially invited to join this society. The secretary will furnish all particulars and blanks for membership by addressing him. He will also be pleased to meet any one in Denver who may wish to join in the work.

Address, T. D. CROTHERS, M.D.,
Secretary, Hartford, Conn.

American Neurological Association.—The Council announces that the twenty-fourth annual meeting of the Association will be held in New York at the New York Academy of Medicine, No. 17 West Forty-third Street, May 26, 27 and 28, 1898. There will be two sessions daily, one from 10 A.M. to 12:30 P.M., the other from 2 P.M. to 4:30 P.M. Send the title of your paper to the secretary, 1719 Walnut Street, Philadelphia, as soon as possible, so as to facilitate the publication of a preliminary program.

Cumberland County (N. J.) Medical Society.—This Society held its annual meeting at Millville April 12. The following officers were elected for the ensuing year: President, Dr. Judson, Newport; vice-president, J. B. Ware, Bridgeton; secretary, Hamilton Mailly, Bridgeton; treasurer, Joseph Tomlinson, Bridgeton; reporter, J. C. Applegate, Bridgeton. Delegates were elected as follows: AMERICAN MEDICAL ASSOCIATION, Drs. H. W. Elmer, T. G. Davis, W. L. Newell; State Medical Society, Drs. L. L. Hand, M. K. Elmer, J. B. Ware, Ellsmore Stites, D. H. Oliver, Rulon Dare; Gloucester County Society, Drs. D. H. Oliver, Ellsmore Stites and J. C. Applegate.

Kentucky State Medical Society.—The following papers are to be read at the Maysville meeting of the Society, May 11, 1898:

A Contribution to the Study of Eye Strain as a Cause of Nervous Diseases, by A. G. Blincoe, Bardstown.

Vaccination, by B. W. Smock, Louisville.

Treatment of Fistula in Ano, by John M. Williams, Louisville.

A Case of Bright's Disease in a Child Three Years of Age, by T. B. Greenly, Meadow Lawn.

Causes and Prevention of Glaucoma, by Richard Taylor, Louisville.

Utility of the Blood Clot in the Treatment of Wounds, by R. C. McChord, Lebanon.

Diagnosis and Treatment of Stricture of the Urethra, by W. R. Blue, Louisville.

Analysis of the Earliest Manifestations of Tuberculosis, by Frank C. Wilson, Louisville.

Uterine Displacements and Their Treatment, W. Esterly Ashton, Philadelphia, Pa.

Ether Pneumonia, by James M. Anders, Philadelphia, Pa.

Gummatous Deposits in the Iris, by Crittenden Joyes, Louisville.

Hazardous and Unwarranted Substitute Procedures in Ophthalmic Surgery, by W. B. Meany, Louisville.

Remarks on the Treatment of Cystitis, by J. G. Garrick, Lexington.

Membranous Croup and Intubation, with Report of Cases, by G. G. Thornton, Gravel Switch.

The Diagnosis and Treatment of Stone in the Common Duct, by H. J. Cowan, Danville.

Abortion and Its Treatment, by E. A. Cherry, Morgantown.

The Rational Therapeutics of Some of the Animal Extracts, by R. Alexander Bate, Louisville.

Treatment of Typhoid Fever, by James F. Rinehart, Springfield.

Ether Anesthesia, by Robert Carothers, Newport.

Mental Responsibility, by Dudley S. Reynolds, Louisville.

Surgical Treatment of Hemorrhoids, by P. H. Stewart, Paducah.

The Physiology of the Liver and the Role it Plays in Digestion and Nutrition, by George E. Davis, Lawrenceburg.

Preventive Medicine and Allied Sciences, by Lyman Beecher Todd, Lexington.

Kidney Failure, by Ewing Marshall, Louisville.

Diagnostic Value of the X-Rays, by J. T. Dunn, Louisville.

Deflection of the Nasal Septum, by Thomas C. Evans, Louisville.

Typhoid Fever; Etiology and Treatment, by J. P. Heavrin, Owensboro.

Constipation, by G. J. Monroe, Louisville.

Cholera Infantum; Report of a Case, by Hugh J. McLean, Wilmore.

Malignant Disease of the Uterus, by Louis Frank, Louisville.

A Case of Hematoma of the Vulva Following Normal Delivery; Operation; Recovery, by Isaac A. Shirley, Winchester.

Induction of Premature Labor for Neuro-retinitis Albuminurica to Save the Eyesight, by J. G. Carpenter, Stanford.

Puerperal Eclampsia, by M. C. Cash, Salyersville.

Smallpox and Vaccination, by Albert Bernheim, Paducah.

Exhibition of an Obstetric Outfit, by Henry E. Tuley, Louisville.

Vesico Vaginal Fistula, With Report of a Case, by D. B. Knox, Newton.

Influence of Age and Race in Surgical Diseases, by W. L. Rodman, Louisville.

The Curative Treatment of Hemorrhoids by the Country Practitioner, by J. L. Atkinson, Campbellsville.

Extra uterine Pregnancy, by F. F. Bryan, Georgetown.

The Midwife and Midwifery, by L. C. Wadsworth, Newport.

Syphilis, Whence Does it Originate and Where is it Now? by Henry Plummer, Harrodsburg.

Special papers for Discussion: Pathology of Osteomyelitis, by Arch. Dixon, Henderson.

Diagnosis and Treatment, by James B. Bullitt, Louisville.

Pathology and Diagnosis of Diphtheria, by C. W. Aitken, Flemmingsburg.

Treatment of Diphtheria, by S. G. Dabney, Louisville.

Relation of State Boards of Health to Medical Practice, by William Bailey, Louisville.

NECROLOGY.

Cornelius Nevins Hoagland, M.D., died at his home in Brooklyn, N. Y., April 24, from hepatic trouble. On January 25 he left for a Mediterranean trip and returned on April 5 with cardiac symptoms which culminated in a short and quiet slumber. He was born in Neshanic, N. J., Nov. 23, 1828, but was brought up in Ohio, where his parents removed in 1834 and where, in Cleveland, he received his medical degree from the Western Reserve University. In 1854 he was elected county auditor of Miami County, Ohio, and was re-elected in 1856, which constituted a term of four years. The breaking out of the war found him a private in the Lafayette Blues, a company recruited in Troy, Ohio, and in 1861, in response to the call of President Lincoln for troops, he became its first lieutenant and with them was assigned as Company H, Eleventh Ohio Infantry. In October of the same year he was appointed surgeon of the Seventy-first Ohio Infantry and served as such until January, 1866. He took part in several engagements and was wounded in the breast at Nashville, Tenn. Coming to Brooklyn, N. Y., in 1868, he engaged in business and in 1876 retired with a competency. Although his name is best known in connection with the laboratory of the Long Island College Hospital, he had many other affiliations such as a Fellow of the Microscopical Society of London, besides being more or less actively identified with the American Geographical Society of New York, the New York Genealogical and Biographical Society, the Long Island Historical Society, the People's Trust Company and the Dime Savings Bank, but most of all does he deserve the grateful remembrance of the medical profession to which he was devotedly attached. He leaves three daughters.

Henry C. Crouch, M.D., Denver, Colo., died April 20, aged 40 years. He was graduated from Yale in 1879, represented the United States as consul at Milan from 1886 to 1890, and in the latter year the University of Giessen conferred the degree of Doctor of Medicine upon him. In 1891 he came to Colorado. Dr. Crouch was appointed a member of the State Board of Health in 1892 and bacteriologist both to the State and city boards of health in 1895, holding both positions at the time of his death. From 1893 to 1897 he occupied the professorship of bacteriology in the medical school of the State University.

William Meacher, M.D., Portage, Wis., died April 22, aged 65 years. Dr. Meacher was a member of the board of censors of the Wisconsin Medical Society, an ex-president of the State, the Northwestern Medical and the Central Wisconsin Medical Society. He was a graduate of Rush Medical College, class of 1862, and during the civil war was commissioned assistant surgeon of the Sixteenth Wisconsin. He was at the siege of Atlanta and in the march to the sea with Sherman.

David W. Yandell, M.D., ex-president of the American Medical Association, Louisville, Ky., died May 3, after long lingering illness. Further notice will appear in the Journal of next week.

Ellsworth D. Whiting, M.D., Rush Medical College, 1897, of the Presbyterian Hospital staff, Chicago, died at Aurora, Ill., April 26, of typhoid fever.

Martin Van Buren Bogan, M.D., Washington, D. C., April 19, aged 69 years.——Elizabeth R. Hess, M.D., Iowa City, April 21, aged 54 years.——Benjamin K. Johnson, M.D., Norristown, Pa., April 23.——James A. Leason, M.D., Dillon, Md., April 21, aged 43 years.——H. G. McNaughton, M.D., Albany, N. Y., April 18.——Charles W. Meyers, M.D., Clinton, Iowa, April 21.——Alexander J. Dunne, M.D., Springfield, Mass., April 22, aged 36 years.——Daniel Smicer Forney, M.D., Burlington, Iowa, April 20, aged 90 years, a graduate of Washington University School of Medicine, Baltimore, class of 1828.

BOOK NOTICES.

International Clinics. A Quarterly of Clinical Lectures, etc., etc. Edited by Judson Daland, M.D., J. Mitchell Bruce, M.D., David W. Finlay, M.D. Volume 1, Eighth Series, 1898. Philadelphia: J. B. Lippincott Company, 1898.

Contributors to this volume are as follows: T. McCall Anderson, M.D., J. W. Ballantyne, M.D., Cecil Y. Biss, M.D., Byrom Bramwell, M.D., F.R.C.P., Norman Bridge, M.D., Henry C. Coe, M.D., Charles Greene Cumston, B. M. S., M.D. Samuel G. Dabney, M.D., Judson Daland, M.D., N. S. Davis, Jr., A.M., M.D., Prof. Hayem, J. O. Hirschfelder, M.D., M. B. Hutchins, M.D., Prof. Jaccoud, Alexander James, M.D., F.R.C.P., I. N. Love, M.D., Herman Marcus, M.D., Prof. Marfan, M.D., Joseph M. Mathews, M.D., Ernest Maylard, B.S., M.D., E. E. Montgomery, M.D., William Oliver More, M.D., Paul F. Mundé, M.D., LL.D., Thomas Oliver, A.M., M.D., A. Pinard, M.D., Thomas R. Pooley, M.D., B. Alexander Randall, M.D., W. O. Roberts, M.D., Albert Robin, M.D., Graham Steell, M.D., Charles G. Stockton, M.D., J. D. Thomas, M.D., Nestor Tirard, M.D., J. S. Todd, M.D., Prof. E. Van Leyden, H. O. Walker, M.D., William H. Wathen, M.D., LL.D.

The volume is well illustrated and gives a fair presentation

of the clinical teachings of the day on the subjects mentioned in the work.

An American Text-book of Genito-Urinary Diseases, Syphilis and Diseases of the Skin. Edited by L. BOLTON BANGS, M.D., and W. A. HARDWAY, A.M., M.D. Illustrated with 300 engravings and 20 full-page colored plates. Philadelphia: W. B. Saunders, 1898. 8vo. pp. 1230. Price $7.00.

This voluminous work is thoroughly up to date and the chapters on Genito-urinary Diseases are especially valuable. The illustrations are fine and mostly original. The section on dermatology is concise and every way admirable. We regret to see that the old system of weights and measures has been used instead of the decimal system, but the work as a whole is worthy of all praise.

Chapin on Insanity. By JOHN B. CHAPIN, M.D., LL.D., Physician-in-Chief, Pennsylvania Hospital for the Insane; late Physician-Superintendent of the Willard State Hospital, New York, etc. 12mo, 234 pages, illustrated. Philadelphia: W. B. Saunders, 1898. Price $1.25.

This is an admirable manual for those who wish to obtain a general knowledge of the subject without the labor or burden of the study of more voluminous text-books. The essential forms of diseases of mind are well presented, and the work is intended to be for popular as well as scientific reading.

A Laboratory Text-book of Pathology for the use of Students and Practitioners of Medicine. By HORACE J. WHITACRE, B.S., M.D. Illustrated. 8vo. Cl., pp. 172. Philadelphia: P. Blakiston, Son & Co. 1897. [Chicago, E. H. Colegrove, agent.]

This work is not intended as a complete treatise on pathology, but it furnishes the student with an excellent text-book for use in the Laboratory.

Photomicrographical illustrations are used throughout the work and are a very satisfactory method of illustration. None of the more pronounced pathologic lesions are omitted.

Fat and Blood, an Essay on the Treatment of Certain forms of Neurasthenia and Hysteria, by S. WEIR MITCHELL, M.D., LL.D. Seventh Edition. 12mo. Cl. pp. 178. Philadelphia: J. B. Lippincott Company. 1898.

When a book has passed to its seventh edition the most that can be done by the examiner is to record the fact, and to note the changes that have taken place since the preceding edition. The author says, "The present edition like the last has been carefully arranged by my son, Dr. John K. Mitchell. Some changes were made in the sixth edition and a few more have been made now as a result of added years of experience. Some points of treatment have been more fully dealt with. The Chapter on Massage has been wholly rewritten, in order to describe the process according to the methods which on use and observation appear to be the best, and to notice the last physiologic studies and its effects."

Atlas of Internal Medicine and Clinical Diagnosis. By Dr. CHR. JAKOB, of Erlangen. Edited by AUGUSTUS A. ESHNER, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic; Attending Physician to the Philadelphia Hospital. 68 colored plates, and 64 illustrations in the text. Pp. 260. Philadelphia: W. B. Saunders. 12mo. Cl. Price $3.00.

This atlas contains a selection of the most important clinical conditions a knowledge of which the practitioner must acquire, and the acquisition is made more simple and easy by its means. We predict a large sale for this work.

Clinical Reports and Notes on Unguentine, Fourth Edition. Paper, pp. 140. Norwich, N. Y. Press of Norwich Pharmacal Co.

This monograph tastily gotten up, contains clinical reports and comments favorable to unguentine. Copy may be had for the asking.

Arsenauro and Mercauro. Paper. Pp. 32. Illustrated. New York: Charles Roome Parmele Co.

This brochure contains clinical records of arsenauro and mercauro as reported in medical journals with several full-page plates in colors.

Daydreams of a Doctor. By C. BARLOW, M.D. 12mo. Cloth. Pp. 252. The Peter Paul Book Co. Buffalo, N. Y. 1898.

This work is an incursion into the field of literature from the standpoint of a physician. It is a rather successful attempt of imitating the style of Ik Marvel in the Reveries of a Bachelor, and will be found very interesting and very instructive. Its style is pleasant and the book will prove an agreeable companion for the doctor when more or less weary by the reading of heavier scientific productions.

PUBLIC HEALTH.

Progress in the Official Organization of Disinfection at Paris.—The Parisian bureau of disinfection has made an important report to the Municipal Council upon the results accomplished under the modernized methods employed for the restriction of infectious disease. From this report it appears that in seven years with a staff which numbers eighty people the organization has carried out in Paris more than 171,000 disinfections, the annual average being at present nearly 40,000. In 1886, before the service was organized, there died in Paris nearly six thousand persons, carried off by epidemic diseases. Ten years afterward, in 1896, the number, which had been gradually falling, fell to below two thousand; that is to say, that three or four thousand human lives were saved every year. Without doubt the works which have been carried out of bringing water straight from the springs have contributed greatly to the amelioration of the sanitary condition of Paris, but disinfection has also played a large part. The total mortality, which was 54,536 in 1892, the date at which the disinfecting service was first organized, fell in 1897 to 46,987, that is to say, an average of 18.54 per 1000 inhabitants in place of 22.47. The principal part of this very considerable diminution in the mortality of Paris is accounted for chiefly by the diminution in zymotic diseases. The mortality from these diseases, which was formerly one-tenth of the whole, fell gradually to one-eighteenth between 1891 and 1895, one-twenty-sixth in 1896 and one-twenty-seventh in 1897. Enteric fever in 1892 accounted for 691 deaths and in 1897 for 231. In 1892 there were 42 deaths from smallpox and only 12 in 1897. In 1892 there were 909 cases of measles and only 811 in 1897. The deaths from scarlet fever, which were 158 in 1892, fell to 76 in 1897. There were 334 cases of whooping cough in 1892 and only 282 in 1897. Finally, diphtheria, which gave rise to 1403 deaths in 1892, was the cause of only 306 in 1897. M. Landrin observed that tuberculosis remained stationary because prophylaxis against this terrible disease, which is accountable for one-quarter of the whole mortality, is not yet a definite part of the social system. He reminded his audience that both the municipal council and the government are ready to make a great effort to fight against tuberculosis. In addition to the measures taken in hospitals and the system of treating the poor at their homes, as well as those unfortunates who are under the care of the Assistance Publique, measures were taken during 1897 by the municipal disinfecting organization with the view of carrying out a more complete and methodical campaign against tuberculosis. The report concludes with the recommendation that measles, which is today one of the most fatal zymotics, should be made a compulsorily notifiable disease.

Progress in the Preparation of Glycerinated Vaccine Lymph in England.—The London *Lancet*, March 5, adverts to an announcement that has been made in some of the medical journals to the effect that the local government board will at once proceed to distribute glycerinated calf lymph to public vaccinators. The statement is evidently premature, for although the board are making arrangements to secure a proper laboratory where the necessary processes of preparing and storing the lymph can be carried out, these arrangements are not yet completed.

There must also necessarily be delay after the laboratory and its staff are in working by reason of the necessity of keeping the glycerinated lymph a sufficient period of time for the destruction of extraneous organisms and for testing the keeping qualities of the lymph. If, as announced by Mr. Chaplin, glycerinated calf lymph is to be available for all vaccinations it is clear that the use of humanized lymph must practically cease, and before this can take effect the department supplying the glycerinated lymph will have to feel confident that it can meet the many demands which will be made on it by supplying in large amount a lymph that can be depended on. We therefore doubt whether any such supply as is needed will be forthcoming for some months to come. But there is reason to believe that such a supply will be issued quite independently of the passing of any vaccination bill. The editor further states that he has received specimens of lymph from the Jenner Institute, prepared and glycerinated in strict accordance with the methods now well known and first advocated by Dr. Copeman. The tubes, it is stated, are only sent out after testing by plate cultivating, and after negative evidence has been obtained of the complete absence of the "adventitious" microbes, as Lord Lister has described them. The calves from which the lymph is obtained are first tested with tuberculin prior to being inoculated. The glycerin used is kept under strict aseptic precautions. As is well known, lymph prepared in this approved way is bacteriologically pure and free from pus producing organisms.

MISCELLANY.

The Sense of Smell in Troubles of the Ears.—Collet has established the fact, with Zwardemaker's olfactometer, that the sense of smell is materially diminished in all disturbances of the ears; least in otitis media and cicatrized tympanum, most in sclerosis.—*Deu. Med. Woch.*, February 24.

Pasteur Institute at Florence.—A Pasteur Institute is to be established at Florence, Italy, for the treatment of rabies, the latter being of common occurrence in Tuscany, where most of the population is engaged in agriculture. Milan, Rome and Naples are already provided with institutes in which the Paster treatment is employed.

A Blow at "Face Specialists."—A bill has been introduced in the New York assembly to put a stop to unprincipled persons who make a business of removing facial blemishes and making dimples. The bill provides that such work may not be done by any but practicing physicians. A fine of $250 and imprisonment for six months will be the penalty for the first offence, a fine of $500 and a year's imprisonment for a subsequent conviction.—*Medical News*, April 2.

The Second French Congress of Gynecology and Obstretrics.—The second periodic French Congress of Gynecology, Obstetrics and Pediatrics will be held at Marseilles, France, from October 8 to 15 under the presidency of Professor Pinnard (Section on Obstetrics), Professor Pozzi (Section on Gynecology) and Professor Broca (Section on Pediatrics). All communications should be addressed to Dr. Quirel, general sectretary of the Congress, 20 Rue Grignan, Marseilles.

The Prevention of Fire in Lodging Houses.—The New York houses for lodgers are said to number 113, at least that is the number on record in the Department of Health as being operated under an official permit. In consequence of the disastrous fire which recently occurred at one of the Bowery houses a simultaneous inspection was made of the entire number on a given night. The result was quite satisfactory, as only five of the houses were discovered to be conducted in violation of the terms of their permits or the requirements of the lodging-house law.

Swiftwater Biological Laboratory.—Dr. Richard Slee, formerly of Brooklyn, has established at the above named town in Pennsylvania a plant for the production of therapeutic animal products, as antitoxins and vaccines. His laboratories have been planned in conformity with the requirements of the State Board of Health, of which he is an officer. Bovine vaccine will be produced in the form of glycerinated virus in Sternberg bulbs or in capillary tubes, or on ivory points.

The "Strabo" at New York Quarantine.—The Health Officer of the port of New York, Dr. Doty, has detained for disinfection purposes the English coffee steamship, *Strabo*, because of a death by yellow fever on the voyage north. Both the captain and cook were taken with the disease on the way up. The former recovered and was able to resume command of his ship. The cook died and was buried at sea. At St. Lucia the ship was disinfected. As there was no evidence of sickness on board at the time of her arrival in the harbor, Dr. Doty directed that the steamer be disinfected again and then be allowed to proceed.

The Rotation Method of Reducing the Blood Pressure.—Von Wenusch has been testing the effect of fastening a person on a revolving table in a dark room, and finds that the frequency of the pulse and the blood pressure is much reduced by this centrifugalization, which he thinks may find some therapeutic application. The table makes sixty revolutions to the minute, but the patient feels no motion, only a tingling in the peripheral vessels from the accumulation of the blood.—*Klin. Therap. Woch.*, February 27.

Telegony.—This term was proposed by Professor Weismann to denote the cases where the female is so far influenced by the first sire to which she bears offspring that the subsequent offsprings to other sires presents some of the characteristics or peculiarities of the first. Early in the century Lord Morton bred from a chestnut mare a quagga hybrid, and the mare afterward produced to a black Arabian horse a filly and a colt marked like the hybrid. In the *Scottish Medical and Surgical Journal*, Dr. J. C. Ewart takes up the subject from the view-point of his own original researches. In 1895 Professor Ewart formed a small stud and commenced various crossing experiments between horses and zebras. He now has five zebra mare hybrids, and the dam of a last year hybrid has recently produced to an Arab horse a foal presenting numerous zebra-like stripes over the croup and loins. He enumerates the explanations of this phenomenon that have been suggested by Sir Everard Home, Herbert Spencer and Weismann, all of which he thinks are highly improbable.

The Antitoxic Action of Nerve Pulp in Strychnin Intoxication announced by Widal and Nobecourt, is now explained in a disappointing fashion by Thoinot and G. Brouardel, who find that a number of inert substances are also capable of neutralizing the poison, and by the simple mechanism that they absorb and retain its toxic essence so that the filtered fluid contains none of the actual poison, and can be injected with impunity. Nerve pulp, talcum powder, charcoal, etc., were nearly equally effective in thus "neutralizing" the poison. *Presse Méd.*, March 26. They are now investigating whether these conclusions will also apply in any degree to Wassermannn's successful experimental neutralization of tetanus with emulsioned brain matter injected several hours before the tetanus toxin. *Vide* JOURNAL, pages 449 and 935.

A Hint to Advertisers.—To our friends in the drug trade and elsewhere, who deal in artistic ways of announcing their products, we may say that an antique glyptic portraiture of Esculapius has recently been discovered and introduced into English literature. In Professor J. G. Frazer's book, on the "Description of Greece by Pausanias," appears a photo-illustration of a marble relief showing the medical divinity as found in the Epidaurian sanctuary. The figure of Esculapius is an

eminently dignified one and if properly reproduced in illustration will be quite sure to arrest medical attention, and this is what our friend, the artistic advertiser, is glad to do. The best imprint is to be found in the *Ephemeris Archæologica* for 1896.

Bequests of a New York Physician.—Under the will of the late Dr. Edward C. Seguin of New York City the Academy of Medicine will fall heir to an oil painting of his father, the late Dr. Edward A. Seguin, together with a frame autograph letter dated Dec. 16, 1847, of Pope Pius IX. He leaves to the same institution a bronze medallion of Charcot and a large photograph of Brown-Séquard. All his instruments and appliances for the study of the nervous system and also all books in his library relating to the anatomy and physiology of the nervous system, he leaves to the pathologic laboratory of the Alumni Association of the College of Physicians and Surgeons, provided a special bookcase and drawers are set apart for their keeping and a catalogue of them is made. In case this bequest is not accepted the collection is to be given to the New York Academy of Medicine, also his special collection of monographs and pamphlets on the nervous system and his other books on the same subject.

A "Healtheries" at New York City in May.—From April 25 to May 31 an International Health Exposition will be held at New York in the Grand Central Palace, Lexington Avenue. The New York Household Economic Association and kindred organizations will co-operate with the management of the Exposition, which will embrace everything relating to health, both indoors and outdoors, and illustrate the sanitary and hygienic progress of the century. Mr. Charles E. Wingate is the supervising director. All exhibitions of this description should be encouraged, for they are of distinct benefit; first, in bringing together for comparison the latest sanitary appliances and methods, and second, in educating the public in their use and benefits. The second point is perhaps the most important, because whatever sanitarians may do with regard to the improvement of their science, the resulting benefits to the health of the community must be tardy unless the public is ready to aid in the application of the improved processes. In our own country we have far too few of these exhibitions, and sanitary science would be much benefited if the public were better educated in this matter.—*Medical News*, April 16.

Ligatures to Produce Atrophy in Inoperable Tumors have been revived of late, as mentioned in the Journal, January 1, page 37, and examination of several of the neoplasms at the death of the patients, five to seven months after the ligatures had been applied, show that ligature of the uterine artery is far superior to ligature of the internal iliac in respect to the hemostasis of the uterus secured. The uterine artery is easily located by its relations to the ureter. A peritoneal incision in front of and parallel to the ureter in the bed of the ovary, discloses the uterine, without fail, at its starting point. In cancer of the uterus the atrophying ligatures seem to diminish the discharges, at least temporarily, but do not conspicuously modify the course of the neoplasm. An interesting point noted is that the ligature was never followed by the formation of a clot, thus confirming in man previous experimental results.—*Presse Méd.*, February 12.

Sixty-six Years Make an "Aged" Person.—The supreme court of Georgia thinks that it would be difficult to designate an exact period of life when one might with certainty be said to have become aged. And, while it concludes that the term "aged" as applied to human beings is not, for all purposes, susceptible of precise definition, and that it is not practicable to arbitrarily fix a period of life at which the condition of being aged may be said to have certainly begun, it holds, in the recent case of Allen vs. Pearce, that it is safe to say that a man 66 years old is entitled to an exemption of his property from levy and sale, under that clause of the constitution of Georgia allowing this right to "every aged or infirm person," and this even though he may be a hale and hearty man. In an English case it has been held that persons 50 years of age are aged within the meaning of the statute of charitable uses, providing for gifts "for the relief of aged and impotent and poor people."

Egg and Coffee, the New Differentiating Culture Medium.—White of egg poured over raw grains of coffee turns a bright green and bacilli develop readily in it, not affected by the color, but with the peculiarity that each species is surrounded by a zone of some other color, which lasts as long as the colonies retain their vitality. Colonies of meningococcus and pneumococcus are surrounded by a zone of bright orange. The staph. pyog. aur. is encircled with a zone of light yellow and slightly liquifies the medium, while around the proteus vulgaris extends a reddish zone. If the colonies are killed the discolored zone gradually returns to its original green. The fresh albumin, 100 grams, is poured over green coffee grains, 20 grams, and set aside for two or three days, then filtered into 10 c.c. test tubes and sterilized by exposure 60 to 65 degrees C. for a couple of hours each day for six days, when it is solidified by raising it to 70 degrees. Acids produce a different effect, so the discoloration by the bacteria is not due to an acid. The green of the albumin is not caused by chlorophyl as the spectrum is quite different, resembling more that of xanthophyl. (Pacinotti and Municchi in the *Gaz. degli Osp. e delle Clin.*, March 13.)

Skin-Grafting Case at the Antipodes.—A curious case was tried recently at Sidney, where a woman brought an action for damages against a doctor who had removed fifty-two square inches of skin to graft on a patient who had been severely burned. It must be admitted that this was a rather a large draft on any one's abnegation, and the good lady seems to have regretted her generosity when it was too late. Unfortunately for her, the fact that she was a consenting party was held by the jury to exonerate the doctor, so she is minus both skin and damages. Possibly a claim would lie against the beneficiary, though even a committee of experts would find it difficult to appraise the value of skin per square inch. On any future occasion we would suggest that she stipulate beforehand how much skin she was prepared to "shed." However, the plaintiff appeared to have just cause for complaint, and we are quite unable to approve the conduct of the surgeon who, even by consent, partially flays one person in the interest of another. —*Medical Press and Circular.*

A Railroad Hospital Car in Belgium.—A modern improvement that Belgium has put upon one of her railway systems is a specially designed and specially built hospital car, which will be available in the case of a serious railway accident. It may also be employed in conveying invalids from one point to another as, for instance, from the inland towns to the health-giving sea-side watering places. The interior of the carriage is divided into a main compartment and two small rooms at the end. In the larger room are twenty-four beds, and each patient lies in front of two small windows which can be opened at will. A movable table can be lowered over each bed. There are lockers in the corridors for ice-chests, provisions and linen. If necessary a part of the saloon can be transformed into an operating chamber. In connection with the hospital is a small chapel for religious services, and the patients will be in charge of a surgeon and nurse. Although primarily designed to meet the wants of the traveling public, this car may be readily adaptable to the needs of injured railroad employes.

Primary Disseminated Sarcomatosis in the Soft Membranes of the Central Nervous System.—F. Svenson has classified the fifteen cases on record. Three were tumors of endothelial origin with endothelial cells, rapid in their development, three and a half

months maximum; five of endothelial origin, in which the cells had lost their endothelial type, course from two months to six years, besides the symptoms indicating pressure there were other morbid manifestations; and seven round-celled sarcomas, average age at death thirteen years, course rapid, from two and a half to twelve months. In his personal case, belonging to the second group, the base of the brain was found dotted with large and small tumors in the pia mater, respecting the nerve substance almost completely, and a single large tumor in the lower part of the occipital and temporal prolongations, distinguished by an alveolar structure, although three kinds of tissue were evident, granular nuclear cells clearly defined, surrounded with a thin layer of protoplasm, ramifying on all sides. These ramifications united with others and formed a myxoma-like tissue. There were also other similar cells without clear outlines. An ependymitis sarcomatosa was also noted. The first manifestations were headaches and convulsions followed by inco-ordination, facial paresis, blindness from papillary stasis, frequent unconsciousness and diminished psychic functions; after six years death in coma, interrupted by convulsions. His article in the *Nordiskt Med. Ark.*, No. 32, 1897, is finely illustrated.

Pill-dipper Patent Void.—Letters patent No. 389,485, issued by the United States, Sept. 11, 1888, to John B. Russell, was for a "device for holding and dipping pills," etc. This device has been described as consisting of a bar having a number of hollow seats for the reception of pills, which bar is adapted to be connected with an exhaust or sucking apparatus, so that the pills to be dipped are held to their seats by atmospheric pressure while being dipped. The specification of Russell's patent contained the following: "Pills are now dipped in gelatin by the use of what is known as a 'needle bar,' viz., a bar in which are set a number of needles. The pills are impaled on these needles, partially dipped, are allowed to dry and then removed from the needles, usually by spring fingers, and the uncoated portion dipped. This, of course, makes a hole in each pill, and requires considerable manipulation. My invention consists in holding the pills on the dipping mechanism by atmospheric pressure, and I do this by maintaining a partial vacuum behind the pills when in position." Unfortunately, however, for the validity of the patent, the United States circuit court of appeals holds, reversing the circuit court, Frederick R. Stearns & Company vs. Russell, February, 1898, that, notwithstanding the utility and success of the application of the device to pill dipping, this was but a new application of an old device and hence not patentable.

Goat's Milk "Cures" in Switzerland.—Dr. Irving Richman, of the Consular service, writes from St. Gall, Switzerland, that he has been able to find few specialty-cures for the treatment of the sick by the use of goat's milk in that country. There would seem to be a few, if any, purely goat-milk cure establishments in the country. At all the mountain resorts and "*Kurorte*," goat milk is provided as well as the milk of the cow. Goat's milk is believed to be immune to tubercle and more nourishing than any other milk, and hence is often prescribed for patients with a consumptive tendency. I am told that, except for the above mentioned qualities, goat's milk is of no greater value than the milk of the cow. In fact, it is stated that the latter, when boiled, is quite as good as the milk of the goat; inasmuch as many persons dislike to drink boiled milk, fresh goat milk is prescribed instead. In French Switzerland, at Lausanne, Vevey, and other places, boys go from house to house with a half dozen goats, supplying milk as it is called for by milking the animals on the premises. The price of goats is from $5 to $8 each. The canton of Appenzell, in northeastern Switzerland, is particularly noteworthy for "*Kurorte*," whence is dispensed the milk of the cow and the goat, the towns of Heiden and Appenzell being the principal points.

Carne Liquida, a new Uruguayan Food Product.—The *Consular Reports* inform us that 200,000 cattle are slaughtered yearly in Uruguay in the production of meat extracts. Taking into consideration that 100 pounds of good, solid meat yields only 2¼ pounds of extract, the immense loss of alimentary substance to the world may be imagined, and therefore from a standpoint of national economy, as well as food, the production of meat extract must be considered as a great wastage of alimentary matter. No doubt this fact has given rise to the various and extensive experiments made in the field of chemistry everywhere, as well as in the great meat-producing country of Uruguay, and beyond question has also led to the discovery made by the Uruguayan chemist, Dr. Valdes Garcia, of the so-called "*carne liquida*" (liquid or fluid meat), in which he endeavors to combine the qualities of the extract of meat with the nourishing properties of the meat itself. This is already the third in prominence of the meat products of the country. The success of this comparatively new product has been so far very satisfactory, as regards the purposes for which it was intended. It is building up a considerable reputation the world over, and is already called for by merchants of Europe, Africa, America, and Australia, so that the factory is pushed to supply the demand. This very digestible and nourishing aliment is recommended especially to hospitals by the various chemists who have analyzed it.

Dentistry Practice—Kind of Certificates Required in Maryland.—An interesting point of statutory construction is involved in the decision of the court of appeals of Maryland, which was handed down Feb. 10, 1898, in the case of Knowles against State. An 1896 act of that State declares that it shall be unlawful for any person to practice dentistry in the State without first obtaining a certificate as provided by the act, while section 12 thereof excepts from its operation certain classes of persons, providing, among other things, that nothing therein shall be construed as to interfere "with persons holding certificates issued to them prior to the passage of this act." In this case, after a conviction in the criminal court of Baltimore City for unlawfully practicing dentistry without having obtained from the State Board of Dental Examiners a certificate as required by the foregoing act, appeal was taken, contention being urged that the trial court had erred in rejecting as evidence a certificate of qualification and registration issued by the Board of Dental Examiners of the State of Ohio. But the court of Appeals of Maryland takes the position that it was the intention of the legislature to confine the act of 1896 in its application to certificates which had been issued by the Dental Board of that State, under article 32 of the Code of Public General Laws, and to save all certificates which had been previously issued thereunder, without giving the act any extra-territorial force, especially as its language, taken in connection with the previous legislation on the subject, shows conclusively that the act refers only to certificates issued by the Board of Dental Examiners of Maryland, and not to those issued by other States. For these reasons, it holds that there was no error in the rejection of the testimony offered in presenting the Ohio certificate.

Postponed Impregnation.—A rather puzzling class of cases for obstetricians is that of delayed conception. De Koninck has, in the *Revue Médicale*, October 30, analyzed about 400 cases of primaparous labor in wives married for several years and relatively mature. He favors the thirtieth year as the earliest proper to be included under the term of "maturity," or the *primapares agées* of the French writers. It appears that in a genuine uncomplicated case of delayed impregnation the advent of the catamenia is always found to have occurred late in youth. Out of 401 such cases menstruation was retarded till 20 in 39, till 24 in 4, and till 26 in 1. As to the retarded first pregnancy, such complications as abortion, ectopic gestation, twins and

special renal mischief, are relatively frequent. Above all, lingering labor is especially common, statistics even exceeding guesses and *a priori* reasoning in this respect. In 12 out of 17, noted by De Koninck, labor lasted from forty to fifty hours, the remaining labors being yet longer; one exceeded ninety hours. Feebleness of uterine contraction is absolute from first to last, and independent of any obstetrical combination. They also cause far more physical and mental exhaustion than the vigorous contractions of a young uterus, and at the same time are more painful. There are discrepancies in the "pains" seen in mature primaparæ of the same age, probably homologous with the great variations in the age of menopause observed in otherwise normal women. The uterus may be older in one woman aged 35 than in another of the same age. The forceps and other obstetrical operations are often required in the mature. Most of the above facts are easily explained. The excess of male infants borne by mature primaparæ (30 per cent.) is a less explicable phenomenon. Hecker considers the predominance of male infants as a specialty of all primaparæ, but Rumpe turns attention to the fact that in a family of children the predominance of males is commoner the further the mother is from her first menstrual period.

When Doctors are Baffled.—An important precedent, of particular interest to physicians and surgeons, is established by the decision rendered by the appellate division of the supreme court of New York, in the case of Yaggle vs. Allen, January, 1898. This was an action brought against two doctors, father and son, for negligently causing the death of Frederick Yaggle, who had called at their office to have a shoulder set, that was subject to dislocation. After this operation had been performed, and while still under the influence of the chloroform, or while recovering from its influence, or just after recovering from its influence, as to which there was a conflict in the evidence, but while still in the operating-chair, Yaggle suddenly expired. There were only three persons present at the time of the administration of the chloroform to, and the performance of the operation upon, the deceased, viz., his son and the two doctors. The son and the doctors were in direct conflict in regard to the amount of chloroform used, the manner of its administration, and several other details, which were relied upon as evidence of the negligent and unskilful manner in which the operation was conducted. Moreover, the only physician sworn on behalf of the plaintiff testified, from the plaintiff's own evidence as to what took place, that he was unable to state the cause of death. One of the physicians sworn for the defendants stated that he was unable to give the cause of death, and two others stated that, from the condition in which the lungs were found, death was not the result of suffocation or strangulation, but, in their opinion, was produced by calcareous degeneration or fatty change of the vessels of the heart. Under such circumstances, which it distinguishes from a case of conflicting expert evidence, the appellate division holds that a jury could not determine the cause of death, because neither juries nor courts are permitted to render verdicts or judgments upon guesses or surmises. For these reasons it reverses a judgment that was rendered in the court below against the doctors, and grants a new trial.

Restates the Law Relating to Malpractice.—The court of appeals of New York says, in the case of Pike vs. Honsinger, March 1, 1898, that the law relating to malpractice is simple and well settled, although not always easy of application. A physician and surgeon, by taking charge of a case, impliedly represents that he possesses, and the law places upon him the duty of possessing, that reasonable degree of learning and skill that is ordinarily possessed by physicians and surgeons in the locality where he practices, and which is ordinarily regarded by those conversant with the employment as necessary to qualify him to engage in the business of practicing medicine and surgery. Upon consenting to treat a patient, it becomes his duty to use reasonable care and diligence in the exercise of his skill and the application of his learning to accomplish the purpose for which he was employed. He is under the further obligation to use his best judgment in exercising his skill and applying his knowledge. The law holds him liable for an injury to his patient resulting from want of the requisite knowledge and skill, or the omission to exercise reasonable care, or the failure to use his best judgment. The rule in relation to learning and skill does not require the surgeon to possess that extraordinary learning and skill which belong only to a few men of rare endowments, but such as is possessed by the average member of the medical profession in good standing. Still, he is bound to keep abreast of the times, and a departure from the approved methods in general use, if it injures the patient, will render him liable, however good his intentions may have been. The rule of reasonable care and diligence does not require the exercise of the possible care, and, to render a physician and surgeon liable, it is not enough that there has been a less degree of care than some other medical man might have shown, or less than even he himself might have bestowed, but there must be a want of ordinary and reasonable care, leading to a bad result. This includes not only the diagnosis and treatment, but also the giving of proper instructions to his patient in relation to conduct, exercise and the use of an injured limb. The rule requiring him to use his best judgment does not hold him liable for a mere error of judgment, provided he does what he thinks is best after careful examination. His implied engagement with his patient does not guaranty a good result, but he promises by implication to use the skill and learning of the average physician, to exercise reasonable care, and to exert his best judgment in the effort to bring about a good result.

Bellevue Hospital Overcrowded.—A telegram from Albany, N. Y., shows that the State Board of Charities are about to report certain serious defects at the Bellevue Hospital. The cellars especially of that institution have not been properly cared for. The wooden floors were found in a very bad condition, the boards being rotten and broken. They contained several old and leaky ice boxes. The exhaust from a service steam pipe enters the sewers within ten feet of some of the ice boxes and ends there. Several of the cellars are used for storage purposes, but there is little system, and their use for this purpose should be discontinued. In the carpenter shop there were several lighted candles unprotected by wire screens. Heaps of shavings on the floor suggested the danger of fire from an overturned candle. Recommendation was immediately made that the carpenter shop be removed from the cellar. Other cellars were occupied as eating places for self-committed men who work a few days for their board. In one of these were several dining tables made of rough wood, one of which at least was uncleanly. An adjoining cellar was used as a dormitory for homeless men. It contained thirty-two beds. It was very dark, badly ventilated and out of repair; unfit for decent human habitation, and greatly overcrowded. Preliminary measurements show that the lawful amount of cubic space is not given the inhabitants of the cellars. The same conditions apply to a cellar room used as a dormitory for male help. The cellars were found in a condition that must be dangerous to the health of the inmates of the upper floors, as well as unfit for occupation. The orderlies' dining room, in the basement, was a dismal apartment in bad order. The alcohol ward overcrowded. In the sitting-room of that department were twenty men, convalescent, and for want of space several of them were obliged to lie on the floor. The female ward was also overcrowded; there were eighteen inmates and only fourteen beds.

Insane Person not Deprived of Liberty Without Due Process of Law.—There are many cases, says the supreme court of errors of Connecticut, in which a man may be restrained of his liberty

by any one and without warrant. These have always been holden not to infringe the constitutional provision which says that no person shall be deprived of his life, his liberty, or his property without the due process of law. Thus, one who is prevented from injuring another can not justly assert that he has himself been deprived of any right. And an insane person, whose going at large is dangerous to others or to himself, and who is restrained, can not maintain that he has been deprived of any right or that he has suffered any injury. But a private person can act in restraining another of his liberty only in an emergency, and then only at his peril, the peril of being unable to prove the existence of the emergency which is his justification. So the court goes on to say in Porter vs. Riech, January, 1898, that a wise administration of government does not leave it to private persons to decide when these restrictions shall be exercised, but statutes are passed which directly name or authorize a municipal board to appoint some one to judge of the emergency and direct the performance of those acts which any individual might do at his peril without any statute, and where private persons might not be willing to take the hazard. Such a one as is so named or appointed is the agent of the law and incurs no personal liability. Statutes of this kind, and in many States, the court adds, have been upheld, and so far as it knows without exception. Upon this basis the court especially holds that a statute naming the judge of probate in each district as the agent of the law to determine whether such conditions exist as make it necessary to confine a person supposed to be insane for a temporary period, as pending proceedings for a hearing and examination does not violate any constitutional provision, but is clearly within the police power of the State.

The "Fango" Treatment.—According to the correspondent of the London *Lancet*, March 5, at Vienna, this subject has recently been discussed in one of the medical societies of that city. The "fango treatment" consists in the therapeutic use of a kind of mud obtained from the five lakes of Bataglia, fango being the ordinary Italian word for mud. The substance in question forms a grayish-brown homogeneous mass which adapts itself to the body like a plaster-of-Paris bandage, it retains its heat for a longer time than any poultice does, and it has the advantage that it does not cause the rashes which were brought out by moor (a kind of peat). It contains abundance of oxid of iron, salts of calcium and magnesium, silicic acid and a little organic matter. In the paper on the application of fango read by Dr. Rufschnaiter at the last meeting of the Vienna Medical Society he stated that the affected part of the body is plastered with it and covered with a cloth. At the commencement its temperature ought to be 42 degrees C. (106.6 F.), and may be increased to 54 degrees C. The application lasts twenty-five minutes and produces copious perspiration without any increase of either the respiration or the pulse-rate, and there are no symptoms of weakening of the heart such as result from bathing in water, but the temperature may rise 1.5 degrees C. (2.7 F.) Analysis shows an increase of the nitrogen and the uric acid excreted and a diminution of the water in consequence of the diaphoresis. Fango may be applied over extensive surfaces without producing congestion; it acts as a diaphoretic, as a derivative in hyperemia of the internal organs, as an anodyne in neuralgia and rheumatism, and as an absorbent in joint affections and chronic endometritis.

Experiment Upon Dead Body Not Satisfactory.—The judgment for $1,741.66 recovered in the malpractice case of Hastings vs. Stetson was affirmed by the supreme judicial court of Maine, January, 1898. The evidence tended to show that the plaintiff having suffered a subglenoid dislocation of his right shoulder on November 6, called in the defendant, who failed to discover the dislocation until the twelfth day after the injury. This leads the court to hold that the jury were justified in finding the defendant guilty of negligence in the case, for if he had exercised the care the law requires of a surgeon, it declares he could and ought to have ascertained the fact of dislocation before the lapse of twelve days. But, it says, he was responsible only for the consequences of that negligence. The dislocation was reduced on November 20 by another surgeon. Nearly complete paralysis of the arm and hand had resulted before the reduction. The plaintiff contended that this was caused by the head of the humerus resting upon and pressing the brachial plexus, a network of nerves in the armpit, for twelve days; and that the defendant's negligence in failing to reduce the dislocation for that length of time caused the paralysis. The defendant, on the other hand, maintained that the head of the humerus, in that kind of dislocation, does not and can not rest upon the brachial plexus, and that the paralysis was the result of the blow which dislocated the shoulder, the head of the bone, in its progress from the socket, lacerating the nerves of motion and sensation which supplied the arm. Many experts in surgery and nerve troubles were examined. Some of them said that, in a subglenoid dislocation of the shoulder the head of the humerus can not rest upon or press injuriously the brachial plexus; that it is an anatomic impossibility; that an experiment upon a dead body demonstrates this; while others said that in that dislocation the head of the humerus would rest upon the brachial plexus; while still others said that in such a dislocation the head of the humerus does not ordinarily rest against the brachial plexus, though it sometimes does, but not frequently. The experiment upon a dead body, the court declares not satisfactory, as there must be a difference in the action of a living sensitive muscle from that of a dead one. And, while the experts were likewise divided as to the cause of the paralysis, the court holds, particularly as it came on gradually for several days after the injury, that the long delay before the dislocation was reduced was the proximate cause of the paralysis; that the defendant was liable for that delay, and that the award of damage therefor could not be said to be too large.

Did the Plague Exterminate the Hellenic People.—A writer in *Lippincott's Magazine* advances the theory that the Greek nation, of the classic period, was wiped out by the plague in the eighth century; and that therefore, the modern Greek is not a Greek at all. He says that the classic Hellene, the typical Greek of antiquity as depicted in sculpture and described in poetry was tall and powerful. So peculiar to his race was his nose that the occasional occurrence of the same kind of nose among modern nations is called Grecian. No other nation, ancient or modern, shows this nose except in rare and sporadic instances. From the Greek sculptures we are led to believe that practically all ancient Greeks had this nose. The ancient Greek was a blond. His hair was of tightly clinging reddish curls. His eyes were blue. The modern Greek possesses none of the foregoing physical characteristics save the curly hair, which is dark. Indeed, no Indo-European nation is a more complete contrast to the general conception of the ancient Greek type. Observing these things it is not strange that a number of German scholars declared that the modern Greek is not a Greek, and that the ancient Greek has passed from the earth, well nigh as extinct as the dodo. At first thought the evidence would seem to prove this theory conclusively. Not only does the modern Greek differ in physical characteristics from the type of ancient Greeks as generally accepted, but there are historical grounds for believing that there is no kinship between the two. In the eighth century a plague devastated Greece, Slavs and Albanians emigrated to fill the depopulated regions. This plague is supposed to have caused the disappearance of the Greek population and the substitution of Slavs and Albanians.

A Distinguished Sanitarist of Scotland.—The *Scalpel* for February contains a portrait, with life-sketch, of Sir William Ten-

ant Gairdner, M.D., a prominent Glasgow member of the British Medical Association, a physician to her Majesty in Scotland, professor in the Glasgow University in the Theory and Practice of Medicine for over thirty years, and member of the General Council of Medical Education and Registration representing his University. In 1848 he succeeded that pathologist and author so well known and admired by Americans, Dr. Hughes Bennett, as Pathologist at the Edinburgh Royal Infirmary, where he remained nine years until called to Glasgow. In 1863 he became the health officer for Glasgow, and his accomplishments in the sanitary field lost nothing in comparison with his deeds in the less important duties of teaching and medical politics. This last appointment was accepted with some hesitation, but Sir William Gairdner has since on many occasions borne witness to the great influence for good which the experience gained in that office has had upon his career as a clinical physician and as a teacher of medicine. The sanitary condition of Glasgow at that time was most deplorable. In some parts there was such great overcrowding that nearly 1,000 persons lived upon an acre of ground. The habits of the people were often extremely filthy, and the possibility of cleanliness was too often denied to them by the faulty construction of the enormous tenement houses in which they dwelt, and by the insufficient supply of water, which in any case was of doubtful purity. The prevalence of typhus fever was only an index of the numerous other preventable diseases produced or fostered by insanitary surroundings, but having enlisted the support of the lay officials of that day, an immense transformation was worked under the Glasgow City Improvement Act, and when the great epidemic of cholera reached Glasgow so many improvements had been effected, and public opinion had been so completely won over, that the city was able to face it without panic, and the citizens showed no disposition either to conceal or to exaggerate individual cases of diarrheal disease. As a matter of fact, Glasgow was able to show a death-rate from cholera very much less than that of any other large town in Scotland, except Paisley, which had been the first to adopt similar precautions. Not the least of the services which Sir William Gairdner rendered to the city of his adoption was that he was able, when he resigned the office of medical officer, to point out as his successor Dr. J. B. Russell, whose name is known the round world over as a sanitarian indeed in whom there is no guile, with his whole soul in his work, and an ample Scottish brain to co-ordinate it. On New Year's Day of 1898 Dr. Gairdner received his latest title of honor, having been designated by his Queen to be a knight, with the right to use K. C. B. after his name. He is also the Dean of the Medical Faculty of his University.

Bequests to Brooklyn Institutions.—Under the will of the late Mrs. Charlotte Buck, of Brooklyn, the City Hospital and the Long Island College Hospital will each receive $5000. Also, under codicil the Brooklyn Eye and Ear Hospital has the reversion of an equal amount, while other donations will eventually reach about twenty more charitable homes and societies, the aggregate of which is about $340,000.

Many Returns of the Day.—The University of Pennsylvania owns as one of her worthy sons, Dr. Samuel C. Busey of Washington, whose class was that of 1848. The Doctor recently celebrated the golden anniversary of his graduation as Doctor of Medicine, as we published at the time. Among the out-of-town guests were Dr. Jacobi of New York, Dr. Pepper of Philadelphia, Dr. Blackader of Montreal, and Drs. Kelly and Hurd of Baltimore. It may be added that Dr. Busey's connection with our ASSOCIATION was only five years later than the date above given. He was one of our vice-presidents in 1876.

Medical Officers of the Asiatic Fleet.—The following is the list of medical officers attached to vessels of the U. S. Navy under command of Admiral George Dewey, who won the great naval victory at Manila May 1, 1898: *Olympia*, flagship: Medical inspector, A. F. Price; passed assistant surgeon, J. E. Page; assistant surgeon, C. P. Kindleberger. *Raleigh:* Surgeon, E. H. Marsteller; assistant surgeon, D. N. Carpenter. *Boston:* Surgeon, M. H. Crawford; assistant surgeon, R. S. Blakeman. *Baltimore:* Passed assistant surgeon, F. A. Hesler; assistant surgeon, R. K. Smith. *Concord:* Passed assistant surgeon, R. G. Broderick. *Petrel:* Passed assistant surgeon, C. D. Brownell.

A Combatant Medical Man.—Captain Leonard Wood, Assistant Surgeon, U. S. A., for some time past on duty as assistant to the attending surgeon, Washington, D. C., has been granted authority to raise a regiment of volunteer mounted riflemen, to be organized under section 6 of the Act of Congress approved April 22, 1898. He has been directed by war department orders to proceed to Muscogee, Indian Ter.; Guthrie, Oklahoma; Santa Fe, N. M.; Prescott, Ariz.; Carson City, Nev., and Salt Lake City, Utah, to expedite recruiting, examine the volunteers as to their physical qualifications and muster the accepted recruits into the United States service. It is understood that he will be appointed colonel of this regiment of "rough riders," and that the present Asst. Secretary of the Navy, Mr. Theodore Roosevelt, will become its lieutenant-colonel. There is no particular or essential reason why a medical man may not at least succeed as well as those entering the volunteer service from any other profession or trade, but heretofore the legal profession have had a monopoly of the commissions in the volunteer service.

Mustering in of Volunteer Medical Officers.—In the instructions just published by the War Department for the guidance of officers assigned to the duty of mustering into the United States service the volunteers who respond to the call of the President it is stated that during the organization of a volunteer regiment, its medical officers may be mustered in at any time to aid in recruiting the regiment; but before being mustered they will be required to pass a satisfactory examination as to character and professional ability before a board of army or civilian surgeons, or both, designated by the Surgeon-General of the army. It is provided also that if there be no medical officers duly appointed present, the mustering officer on consultation with the regimental commander, will select and engage the services of one or more physicians having diplomas, and of well established capacities and character, to assist him in inspecting the officers and men to be mustered, and so attend upon and accompany the troops on their march till relieved by others regularly appointed.

To Medical Officers of the Army.—Surgeon-General Sternberg has issued a circular of instructions to medical officers of the army giving directions for obtaining the best sanitary conditions in camp, and for protection against malarial and yellow fevers. It reads as follows:

In time of war a great responsibility rests upon medical officers of the army, for the result of a campaign may depend upon the sanitary measures adopted or neglected by the commanding generals of armies in the field. The medical officer is responsible for proper recommendations relating to the protection of the health of troops in camp or in garrison, and it is believed that as a rule medical officers of the United States Army are well informed as to the necessary measures of prophylaxis and the serious results which infallibly follow a neglect of these measures, especially when unacclimated troops are called on for service in a tropical or semi-tropical country during the sickly season. In Cuba our army will have to contend not only with malarial fevers and the usual camp diseases, typhoid fever, diarrhea and dysentery, but they will be more or less exposed in localities where yellow fever is epidemic and under conditions extremely favorable for the development of an epidemic among unacclimated troops. In view of this danger, the attention of medical officers and of all others responsible for the health of our troops in the field is invited to the following recommendations: When practicable camps should be established on high and well drained ground not previously occupied. Camps should be changed to fresh ground every ten days or oftener. Sinks should be dug before a camp is occupied, or as soon after as practicable. The surface of fecal matter should be covered

with fresh earth or quicklime or ashes three times a day. New sinks should be dug and old ones filled when contents of old ones are two feet from surface of ground. Every man should be punished who fails to make use of the sinks. All kitchen refuse should be promptly buried and perfect sanitary police maintained. Troops should drink only boiled or filtered water and coffee or tea (hot or cold), except where spring water can be obtained which is pronounced to be wholesome by a medical officer. Every case of fever should receive prompt attention. If albumin is found in the urine of a patient with fever it should be considered suspicious (of yellow fever) and he should be placed in an isolated tent. The discharges of patients with fever should always be disinfected at once with a solution of carbolic acid (5 per cent.) or of chlorid of lime (6 oz. to gallon of water) or with milk of lime made from quicklime. Whenever a case of yellow fever occurs in camp the troops should be promptly moved to a fresh camping ground located a mile or more from the infected camp. No doubt typhoid fever, camp diarrhea and probably yellow fever are frequently communicated to soldiers in camp through the agency of flies, which swarm about fecal matter and filth of all kinds deposited upon the ground, or in shallow pits, and directly convey infectious material, attached to their feet or contained in their excreta, to the food which is exposed while being prepared at the company kitchens or while being served at the mess tent. It is for this reason that a strict sanitary police is so important. Also because the water supply may be contaminated in the same way or by the surface drainage. If it can be avoided, marches should not be made in the hottest part of the day, from 10 A.M. to 5 P.M. When called upon for duty at night or early in the morning a cup of hot coffee should be taken. It is unsafe to eat heartily or drink freely when greatly fatigued or over-heated. Ripe fruit may be eaten in moderation, but green or over-ripe fruit will give rise to bowel complaint. Food should be thoroughly cooked and free from fermentation or putrefactive changes. In decidedly malarious localities from three to five grains of quinin may be taken in the early morning as a prophylactic, but the taking of quinin as a routine practice should only be recommended under exceptional circumstances. Light woolen underclothing should be worn, and when a soldier's clothing or bedding becomes damp from exposure to rain or heavy dew the first opportunity should be taken to dry it in the sun or by fire.

Typewriters' Cramp.—Sufferers from writers' cramp are, in the majority of cases, quite able to produce manuscript by means of a type-writing machine, but an instance in which this resource failed is recorded by Dr. F. Hampson Simpson in the *Birmingham Medical Review*. He states that he is not acquainted with any authentic record of a similar case, although he has recently met with two examples of what was called typewriters' cramp; one of these patients, however, seemed to suffer from neuritis and the other from pain and fatigue in the right hand unaccompanied by muscular weakness or spasm. The patient is a muscular man, 33 years of age. He became a clerk when 18 years old and then wrote with a pen on an average from seven to eight hours daily. In March, 1889, that is, after about seven years of this employment, the initial symptoms of writers' cramp declared themselves and at the end of three months all the fingers of the right hand were invaded by spasm, which seriously interfered with writing. In 1889 he learned to use the typewriting machine and he commenced learning to play the harp, but after a few months he found that playing brought on cramp, affecting the right hand generally, more especially the first and second fingers, so that he gave up the harp at the end of 1890. For three years he was at sea as interpreter on board a transatlantic steamer. In January, 1897 he entered an office as typewriter, but was only engaged in working the machine for two or three hours daily. Toward the close of one of the days at the end of February, whilst at work "typing," his right index finger became bent by cramp. From this time on, a repetition of the cramp occurred toward the evening of each day, a slight involuntary flexion at the wrist being superadded, and in less than a month the exaggeration of the spasm led him to substitute the middle of the index finger; six or seven days later this middle finger also became the seat of similar spasm. Dr. Simpson observed very little tendency to spasm in the operating finger of the right hand during the early portion of a day's work, but after about two or three hours typing the index finger of the right hand became very fatigued and to the flexion of the finger and wrist incidental to striking the keys there was superadded a spasmodic contraction which overflexed those parts. This did not appear to seriously impair the precision of his touch and an inspection of his typewritten work revealed no objective evidence of the spasm in the right finger. It was suggested that he should strike the keys with a little hammer or percussor and he employed this with much benefit and relief for some little time, but the cramp now effects the whole forearm. He has been a pianist for many years and his piano playing is not in the least interfered with by any spasm.

Colleges.

THE SIOUX CITY COLLEGE OF MEDICINE, Sioux City, Iowa, graduated a class of twelve on April 5.——At the commencement of the Medical Department of Fort Worth University, Texas, April 7, twenty-one were graduated.——The graduates from Baltimore Medical College, April 21, numbered 144.——Buffalo University had sixty-three graduates in its medical department, April 26, and the recent commencement of the Toledo (Ohio) Medical College added twenty-seven to this years' medical graduates.

Societies.

The following meetings are noted:

Connecticut.—The 106th annual of the Middlesex Medical Association, Hartford, April 28; Tolland County Medical Society, Hartford, April 19.

Illinois.—Chicago Medical Society, May 4; District Medical Society of Central Illinois, Pana, April 26.

Indiana.—Wabash County Medical Society, Wabash, April 21.

Maryland.—Baltimore County Medical Association, Baltimore, April 21.

Massachusetts.—Hampden District Medical Society, Springfield, April 19; Middlesex South District Medical Society, Watertown, April 21.

Missouri.—Linn County Medical Society, Brookfield, April 19.

New York.—Syracuse Academy of Medicine, April 19.

Pennsylvania.—Blair County Medical Society, Altoona, April 21; Carbon County Medical Society, Mauch Chunk, April 22; Columbia County Medical Society, Blinnsburg, April 19; Franklin County Medical Society, Chamberburg, April 19.

Philadelphia.

THE EXAMINATIONS before the Pennsylvania State Board of Medical Examiners and Licenses will begin at 2 P.M., June 14; they will be held both in this city and in Pittsburg. Dr. H. G. McCormick of Williamsport is President, and Dr. Wm. S. Foster of Pittsburg, Secretary, for the current year, of the Board representing the Pennsylvania State Medical Society, which the daily papers seem to take a special delight in designating by the Hahnemannian epithet of "allopathic," in order to distinguish it from the homeopathic and eclectic examiners on the State Board.

THE WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, in order to raise money for the new laboratories, decided to give a series of entertainments of a popular character, the first of which was at the Academy of Music on the 25th ult. Ysaye, Marteau, Gerardix and Lachaume, were the principal artists.

THE WAR FEVER has broken out among the students at the colleges, and, on Friday night, last week, about 500 University men, headed by a band of music, had a street procession. The Medico-Chirurgical College men to the number of over 400 also marched down Chestnut street with flying colors and drums beating in military style, displaying much enthusiasm.

THE COUNTY MEDICAL SOCIETY at its business meeting held

on the 20th ult., received the report of the committee appointed to wait upon the Mayor of the city to urge upon him and upon City Council the necessity of taking immediate steps to secure filtration of the water-supply of the city. The committee consisted of Drs. Solomon Solis Cohen, Edward Jackson, Wm. W. Welch and James Tyson. The language of the report reflected the state of mind of the community on the almost criminal delay in providing the remedy appealed for. The Society adopted the following as the sense of the meeting:

"*Resolved*, By the Philadelphia County Medical Society that the public safety demands the immediate enactment of such legislation as may be necessary to authorize the construction, maintenance and operation, under public ownership and control, of a proper filtration system."

THE WOMEN'S HEALTH PROTECTIVE ASSOCIATION has handed over to the trustees of the proposed Hospital for Infant Diseases, the sum of $2,000, the proceeds of a recent entertainment held in this city.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY held a very interesting meeting on April 27. Dr. Judson Daland demonstrated the methods of determining the percentage of red blood cells and hemoglobin, with remarks on their value. Dr. S. E. Solly of Colorado Springs read a paper, by invitation, on "The Blood Changes Induced by Altitude and Their Practical Value." The discussion was opened by Dr. E. O. Otis of Boston, followed by Roland G. Curtin, A. E. Taylor, J. P. C. Griffith, F. P. Henry, J. B. Walker and others.

THE PATHOLOGICAL SOCIETY listened to an address by Dr. F. B. Mallory, assistant professor in the Medical School of Harvard University, at its meeting held on April 28. Dr. Mallory's subject was "A Histologic Study of Typhoid Fever." After the exercises were concluded Dr. Mallory was a guest at a reception given in his honor at the University Club, which was largely attended by the profession.

DR. CHARLES W. BURR has resigned from the chair of neuropathology in the Philadelphia Polyclinic on account of pressure of other engagements.

YELLOW FEVER IN CUBA. — Dr. John Guiteras recently spoke (Press) of the danger necessarily arising from the occupation of Cuba by the United States troops. A great deal has been recently said of what is termed "individual precautions" against yellow fever while in an infected district, which Dr. Guiteras thinks is almost useless in time of war. He said that the disease ought not to be treated from the standpoint of the individual but from the standpoint of the mass. Possibly the most important measure to be exercised by the army would be general measures affecting the distribution of troops, the manner and place of landing, the location of distributing centers of supplies, and the selection of sites for the establishment of camps. The Island of Cuba is usually free from the disease till the middle of June, when it continues until the middle of October, being worse during the months of August, September and October. Outside of the large seaport cities the climate is most pleasant, malarial fevers and dysentery not being more prevalent than during the civil war. The interior of the island is free from the disease, while Havana and other seaport cities are the danger spots of the disease and always infected. Another important factor in the proper protection of the troops is the shipping of all food supplies from the United States. Dr. Guiteras holds to the belief that the whole island could be kept free from the disease the year round by means of proper sanitary measures, and that the island has always been a menace to the United States owing to the lack of proper precautions maintained under Spanish misrule.

MEDICAL COLLEGES OF PHILADELPHIA will all furnish their quota of men and trained nurses ready to go to war. It is gratifying to state that if their services are needed a full quota of physicians will be sent out by the faculty and students of the medical colleges of this city. Coach Woodruff, who began organizing a company some time ago at the University of Pennsylvania, has extended the invitation to other colleges and now has almost enough men to form two regiments. A number of students in the medical department have passed final examinations preparatory to going into camp. Dr. Martin H Williams, Chief of the Surgical Clinic at Jefferson Medical College, with four other physicians of the staff, eight trained nurses and a directress will offer their services and if need be will take charge of a hospital in Cuba. It is their intention to be an organized body and to work as such wherever placed. None the least enthusiastic are the faculty, class and trained nurses of the Medico-Chirurgical College, who have held an enthusiastic meeting in the clinical amphitheater and a large delegation have decided to answer the nation's call. Resolutions were adopted offering the services of the staff and the beds of the hospital free of charge. The trained nurses have also volunteered, so that it may be said that Philadelphia if called upon will do her full duty toward rendering first aid to the injured.

PHILADELPHIA COUNTY MEDICAL SOCIETY FOR FILTRATION. —At a recent meeting of this Society the subject of the water-supply was discussed and the Society came out strongly in favor of filtration and of the public ownership of the filtration plants. It was stated that "the public safety demands the immediate enactment of such legislation as may be necessary to authorize the construction, maintenance and operation under public ownership and control of a proper filtration system," and that "the Society warmly appreciates the course of those members of select and common councils who have earnestly and untiringly worked for filtration under public ownership."

NEW INSANE WARDS FOR THE PHILADELPHIA HOSPITAL.—It will be remembered that a short time ago the JOURNAL mentioned the fact that the condition of the insane wards at the above hospital had reached the stage of overcrowding and more room should necessarily be provided. It is gratifying to state that an ordinance has recently been passed by the Council Committee appropriating $60,000 for the erection of two wards for the insane at the Philadelphia Hospital.

EMERGENCY CORPS OF PHILADELPHIA WANT TO GO TO THE FRONT.—Dr. T. H. Andrews of the Emergency Corps of the Department of Public Safety recently tendered to the government the services of the entire corps, including the police surgeons and assistant medical inspectors. So far no word has been received from the proper officials regarding the acceptance of the offer, but all are eager to enlist.

Washington.

HEALTH OF THE DISTRICT.—The report of Health Officer Woodward for the week ended April 23 shows there were 105 deaths, of which 56 were white and 49 colored. The principal causes of death were, diseases of the lungs, 26, of which 18 were from consumption; nervous diseases, 19; circulatory, 9. There were 4 fatal cases of typhoid, 2 of diphtheria and 4 from la grippe. There were 35 cases of diphtheria and 47 of scarlet fever under treatment at the close of the week. Dr. Maurice E. Miller was appointed assistant medical sanitary inspector and Dr. Walter K. Brothly physician to the poor.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 280th meeting of the society was held on April 22 at the residence of Dr. H. L. E. Johnson. Dr. J. T. Kelly, Jr., read the essay of the evening, entitled "Vaginismus." A very interesting discussion followed, participated in by Drs. Sprig, S. S. Adams, Smith, J. T. Johnson, Acker, Bowen and H. L. E. Johnson.

MEDICAL SOCIETY.—The meeting of the Medical Society held on April 20, was conducted jointly with the Washington Anthropological Society, Dr. S. C. Busey, the president, presided. The general subject for discussion was the treatment and education of the deaf. Dr. Frank Baker discussed the anatomy and physiology of the ear; Dr. Reyburn, causes of

deafness; Dr. Lamb, the criminal and degenerate ear, and Dr. E. M. Gallaudet, the European methods of treating the deaf. At the meeting held on the 27th ult., Dr. Robert Fletcher read a paper entitled, "A Tragedy of the Great Plague of Milan, 1630;" Dr. Snyder, "Cerebellar Abscess Following Otitis Media: Case and Specimen;" Dr. Lamb, "Specimen of Anencephalic Fetus."

Complimentary Dinner to Dr. Samuel C. Busey.—On April 16 fifty members of the Medical Society gave a complimentary dinner to Dr. Samuel C. Busey, their president, in honor of the fiftieth anniversary of his graduation as Doctor of Medicine. Dr. A. F. A. King was toastmaster. Dr. T. C. Smith responded in an eloquent speech to the toast, "Dr. Busey, President of the Medical Society." Surgeon-General George M. Sternberg, in his usual classic manner, responded to the toast, "Dr. Busey, Citizen and Sanitarian." Dr. George M. Kober, in a brilliant speech, responded to the toast, "Dr. Busey, Physician, Author and Teacher." Dr. Busey's response was the feature of the occasion and will be pleasantly remembered by all present.

Central Dispensary and Emergency Hospital.—At the meeting of the board of directors, held on April 29, the following members were elected to serve as directors for three years, Drs. George B. Harrison, W. H. Hawkes, T. M. Murray, J. T. Johnson, Mrs. Arnold Hague, Mrs. Richard Mulligan, W. J. Boardman, John W. Foster, J. L. Bradley and George McLanahan.

Cincinnati.

The Regular Monday meeting of the Academy of Medicine of April 25 was devoted to reports of cases with discussion. Dr. Louis Stricker exhibited a patient aged 23 years who had suffered from the discharge of a couple of sinuses behind the left ear, evidently coming from the mastoid process, for twenty years. When first seen she was semi-comatose with attending symptoms. An immediate operation was advised and she was put on the table that same day. The Stacke-Schwartze was the operation made, and the antrum, the attic, the middle ear and the operative wound were all thrown open into one large cavity, which was subsequently treated with dry dressings. As was expected on opening the mastoid, extensive necrosis was present and the diseased bone was removed for the most part with the spoon. Dr. Joseph Ransohoff reported a case of uterine fibroid, in which the tumor mass had involved one of the cornua and had extended into the broad ligament, causing some pressure symptoms and giving the impression to the examining finger of ovarian and tubal disease. The same member also reported the following: Girl, 4 years of age, was brought to the city with a history of a tumor of the right neck of several months' duration and very rapid growth. Three weeks ago the parents had noticed that the child's feet and eyelids were somewhat swollen every morning but that this swelling promptly disappeared during the day. The tumor had pushed the larynx far over to the left, it was nodular, and these symptoms combined with rapid growth and situation of the neoplasm, determined him in the diagnosis of lymphosarcoma. The examination of the urine showed in addition to a considerable amount of albumin, epithelial casts and numerous blood corpuscles. It was thought that the acute nephritis was dependent upon septic infection from the tumor and it was determined to remove the latter, which was easily done under chloroform anesthesia. The result was gratifying in every respect; the albumin, casts and corpuscles disappeared completely from the urine and the dropsical symptoms also disappeared. Microscopic examination of the tumor confirmed the clinical diagnosis of lymphosarcoma. Discussion was by Drs. Ricketts and Kramer. Dr. J. M. Withrow read a report of fifteen cases of abdominal section supplementary to the thirty-five reported last fall, making a total of fifty consecutive cases without mortality. Dr. W. E. Keily reported a case of walking typhoid in a woman aged 60, who died of peritonitis following perforation of the bowel. The peculiar symptomatology led him at first to suspect acute dysentery, but this diagnosis was soon changed to appendicitis with rupture and an operation was advised, but was refused by the woman. The occurrence of five bloody stools rather invalidated the latter diagnosis and typhoid was next thought of. Postmortem showed the case as above stated. Discussion was by Drs. Cleveland, Ransohoff, Kramer (Widal reaction), Schenck (blood count), Oliver (perforating duodenal ulcer), Ricketts and Keily. After report of case of ophthalmia neonatorum by Dr. S. C. Ayres the meeting adjourned.

The Annual Report of the health department for 1897 is now being distributed among Cincinnati physicians. During the past year a laboratory has been fitted up in the city buildings where bacteriologic and pathologic examinations among the poor are made free of charge. For the most part these have been in diphtheria and tuberculosis patients. According to a law enacted by the department, cases of tuberculosis are being reported and more rigid measures than formerly taken to prevent the spread of the disease. The milk and water supply have also attracted the attention of the health officer and the lessening of the number of cases of typhoid and summer diseases of children is the best witness of the efforts made in this direction. The law passed by the legislature several years ago requiring midwives to report cases of ophthalmia neonatorum immediately, which had practically become a dead letter, is again in force, and many cases of purulent ophthalmia in infants have received early treatment with a consequent saving of sight. In regard to school inspection, which question has been agitated by the department for some time, very little progress has been made, the necessary expense involved being the obstacle. In order to improve the efficiency of the force, examinations are called from time to time, and records here obtained are used in bestowing promotions. Two large maps inserted in the report show that contrary to general opinion, diphtheria and tuberculosis are more prevalent and deadly along the river and Mill Creek than in the heart of the city where the population is much greater.

Vital Statistics.—The number of deaths during the year amounted to 5565, of which 5127 were white and 438 colored. The death rate for the total inhabitants on an estimated population of 405,000, was 13.74 per thousand as against 5916 deaths in 1896, a death rate of 16.90 per thousand on an estimated population of 350,000. For the whites the death rate was 13.14 and for the colored 29.20 per thousand of population, estimating the blacks at 15,000. The principal causes of death were: Phthisis pulmonalis, 675; pneumonia, 511; heart disease, 310; bronchitis, 235; diphtheria, 102; typhoid, 101; deaths by accident, 207; suicide, 69; homicide, 10.

THE PUBLIC SERVICE.

Vision of Recruits.

Washington, D. C., April 20, 1898.

In reply to Dr. L. R. Culbertson of Zanesville, Ohio, the following letter was written. Its publication is requested by Dr. Culbertson.

I am directed by the Surgeon General to acknowledge the receipt of your inquiry of the 18th inst., and to reply as follows:

Applicants whose eyes exhibit refractive errors requiring glasses for their correction should not be accepted for the line of the Army. Slight visual defects which, in the opinion of the examining officer, will not disqualify for service in the line, may be waived; but the same should be noted on the form for the physical examination of the recruit.

Color blindness is not a cause of rejection, but it likewise should be noted on the form.

Applicants may, however, be enlisted in the *Hospital Corps* who are subject to refractive errors of vision; provided these errors are not excessive, may be corrected by glasses, and are not progressive or accompanied by ocular disease. Nor do such defects disqualify candidates for appointment in the Medical Department.

Conjunctivitis, or other disease of the eye, if a temporary ailment, and susceptible of speedy cure without injury to vision, does not disqualify, but it should be noted on the examination form.

Respectfully, Charles Smart,
Deputy Surgeon-General, U. S. Army.

Physical Examination of the State Volunteers.

Arrangements have been made by the War Department for the examination of the Volunteer troops called out under the President's proclamation of April 23, 1898, as to their physical qualifications for the military service. Medical officers of the Army have been assigned to the various rendezvous for this duty as follows:

State.	Rendezvous.	Medical Officer.
Alabama	Mobile	Capt. Wm. E. Purviance, Ass't Surgeon.
Arkansas	Little Rock	Major Harry O. Perley, Surgeon.
California	San Francisco	Major Robert H. White, Surgeon.
Colorado	Denver	Lieut. Col. Alfred A. Woodhull, Deputy Surgeon General.
Connecticut	Niantic	Major Ezra Woodruff, Surgeon.
Delaware	Wilmington	Capt. M. C. Wyeth, Assistant Surgeon.
Florida	Tampa	Major Henry S. Kilbourne, Surgeon.
Georgia	Atlanta	Major Blair D. Taylor, Surgeon.
Idaho	Pendleton	Major Louis Brechemin, Surgeon.
Illinois	Springfield	Capt. H. P. Birmingham, Ass't Surgeon.
Indiana	Evansville	Capt. Wm. J. Wakeman, Ass't Surgeon.
Iowa	Des Moines	Capt. G. J. Newgarden, Ass't Surgeon.
Kansas	Ft. Leavenw'rth	Major John M. Banister, Surgeon.
Kentucky	Lexington	Lieut. Col. William H. Gardner, Deputy Surgeon General,
Louisiana	New Orleans	Capt. C. E. Woodruff, Ass't Surgeon.
Maine	Portland	Capt. H. R. Stiles, Assistant Surgeon.
Maryland	Baltimore	Major Louis W. Crampton, Surgeon.
Massachusetts	Springfield	Capt. G. E. Bushnell, Ass't Surgeon.
Michigan	Detroit	Capt. Benj. Munday, Ass't Surgeon.
Minnesota	La Crosse	Major Philip F. Harvey, Surgeon.
Mississippi	Jackson	Capt. J. D. Glennan, Ass't Surgeon.
Missouri	St. Louis	Capt. C. B. Ewing, Ass't Surgeon.
Nebraska	Omaha	Major Egon A. Koerper, Surgeon.
New Hampshire	Concord	Major Charles B. Byrne, Surgeon.
New Jersey	Jersey City	Capt. W. C. Gorgas, Assistant Surgeon.
New York	Peekskill	Major Louis M. Maus, Surgeon.
North Carolina	Raleigh	Capt. F. A. Winter, Assistant Surgeon.
Ohio	Columbus	Major Valery Havard, Surgeon.
Oregon	Portland	Capt. Edward R. Morris, Ass't Surgeon.
Pennsylvania	Mt. Gretna	Major J. D. Hall, Surgeon.
Rhode Island	Providence	Major C. L. Heizmann, Surgeon.
South Carolina	Charleston	1st Lieut. W. F. Lewis, Ass't Surgeon.
Tennessee	Nashville	Major W. F. Carter, Surgeon.
Texas	Austin	Capt. E. A. Mearns, Assistant Surgeon.
Utah	Ogden	
Vermont	Burlington	Capt. J. R. Kean, Assistant Surgeon.
Virginia	Richmond	Major G. W. Adair, Surgeon.
Washington	Tacoma	Capt. J. L. Phillips, Ass't Surgeon.
West Virginia	Martinsburg	Capt. B. L. Ten Eyck, Ass't Surgeon.
Wisconsin	Milwaukee	Lieut. Col. Henry R. Tilton, Deputy Surgeon General.
Wyoming	Cheyenne	Major Curtis E. Munn, Surgeon.
Dist. Columbia	Washington	Col. W. H. Forwood, Assistant Surgeon General.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from April 23 to 29, 1898.

Major William C. Shannon, Surgeon, having been found by an Army retiring board incapacitated for active service by reason of disability incident to the service, his retirement from active service this date, by the President, is announced. April 23, 1898.

First Lieut. Benjamin Brooke, Asst. Surgeon, is retired from active service as a Captain, upon the finding of an examining board that he is disqualified for the duties of Asst. Surgeon with the rank of Captain, by reason of disability incident to the service, to date from April 20, 1898.

Capt. Leonard Wood, Asst. Surgeon, is relieved from duty in this city, Washington, D. C., and will proceed to the following named places, in the order designated, for duty in connection with the recruitment of a regiment of mounted riflemen, to be organized under section 7 of the Act of Congress approved April 23, 1898: Guthrie, Oklahoma Ter.; Santa Fe, N. M.; Phoenix, Ariz. Ter.; Carson City, Nev.; Salt Lake City, Utah; Cheyenne, Wyo.; Boise City, Idaho.

CHANGE OF ADDRESS.

Anderson, H. G., from 6658 State to 128 W. 67th st., Chicago, Ill.

Bennett, A. L., from Gross Batanga, Kameruns, to Gaboon, Libreville, West Africa.

Carr, B. M., from Chicago, Ill., to Cedar Springs, Mich.; Capron, V. J., from Kau, Haiwaii, to Everett, Wash.; Curtis, A. M., from Chicago, Ill., to Freedman Hospt., Washington, D. C.; Corbel, R. L., from Richmond to Chuckatuck, Va.; Caton, G. A., from Richmond, Va. to Grantsboro, N. C.; Couch, E. E., from Milwaukee to Glenbeulah, Wis.

Dillon, I. H., from Chicago, Ill. to Auburn, Neb.; Dickinson, J. W., from St. Louis, Mo. to Keswick, Ia.

Earll, R. W., from Milwaukee to Columbus, Wis.

Fuson, A. U., from Chicago, Ill. to La Pay, Ind.; Feeney, F. S., from Chicago, Ill. to Rochester, Minn.

Hartman, Jr., J. C., from Pittsburg to Keown, Pa.; Hawley, E. A., from Chicago, Ill. to Greenville, Tex.; Harrison, A. C., from Meyersdale, Pa. to Talleysville, Kent co., Va.; Holmes, E. L., from 206 Cass St. to 558 E. Division, Chicago, Ill.; Hooper, E. W., from Des Moines, Iowa, to La Harpe, Kans.; Homer, H. C., from Chicago, Ill. to Crain Creek, Ia.; Hull, J. F., from Iowa City to Badger, Ia.

Korn, A., from 741 S. Halsted St. to 3269 Cottage Grove Ave., Chicago; Kinneman, J. G., from Mexico to Goodland, Ind.; Kilgore, F., from Yorktown to Parker, Ind.; Kime, J. H., from Bandon, Ore. to Fortuna, Calif.

Lucas, F. B., from Chicago to Peoria, Ill.

Miller, De Laskie, from 56 to 110 Astor St., Chicago, Ill.; Mosher, B. D., from Sandwich to Prairie Center, Ill.; Meek, J. H., from Glencoe to Smithfield, Ohio; McDougall, G. T., from Milwaukee to Osseo, Wis.

Ohreslofferson, A. L., from St. Louis, Mo. to Lind Center, Wis.

Page, T. H., from Chicago to Jerseyville, Ill.; Pfouts, I. M., from Wilmot to Massillon, Ohio; Pilcher, J. E., from Fort Crook, Neb. to Carlisle, Pa.; Patch, Wm., from Ellsworth to Stamford, Ill.; Perkins, E. L., from Indianapolis to Owensburg, Ind.

Rumbold, T. F., from Union Trust Bldg. to Century Bldg., St. Louis, Mo.; Rawley, W. S., from 6325 Monroe Ave. to 63 and Wallace, Chicago, Ill.; Roby, Palmer Mrs., from Cleveland, Ohio, to New Castle, Pa.; Runkel, W. W., from Jefferson to Cambria, Wis.

Small, A. R., from 3131 to 3035 Indiana Ave., Chicago, Ill.; Snyder, L. A., from Columbus, Ohio, to 246 W. Adams St., Chicago, Ill.; Shastid, T. H., from Galesburg, Ill. to 175 Manchester St., Battle Creek, Mich.

Terrell, H. W., from Greenville to La Grange, Ga.; Turner, J. A., from Indianapolis to Martinsville, Ind.; Trueblood, Chas., from 302 E. New York St. to City Hospital, Indianapolis, Ind.

Visser, J., from Chicago, Ill. to Ogema, Wis.

Whiting, E. D., from Chicago to Aurora, Ill.; Walker, J. W., from 305 Park Ave. to 1629 West Adams, Chicago, Ill.; Witter, G. F., from Grand Rapids, Wis. to San Jose, Calif.; Waddell, G. from St. Louis, Mo. to Essex, Mo.

Yoder, J. A., from Cleveland to Millersburg, Ohio.

LETTERS RECEIVED.

Anderson, Winslow, San Francisco, Calif.; Alma Sanitarium Co., Alma, Mich.; Allen, F. H., Shelby, Iowa; Allaben, J. E., Rockford, Ill.; Applegate, J. C., Bridgeton, N. J.

Brown, Mark A., Cincinnati, Ohio; Barry, A., Providence, R. I.

Crothers, T. D., Hartford, Conn.; Culbertson, L. R., Zanesville, Ohio; Clark, E. S., San Francisco, Calif.; Cain, J. S., Nashville, Tenn.; Crane, A. W., Kalamazoo, Mich.; Crane, A. Melville, Marion, Ohio; Chesman & Co., Nelson, St. Louis, Mo.

Dayton, Wm. A., New York, N. Y.; Dellenbaugh, C. C., Portland, Mich.

Eagleson, J. B., Seattle, Wash.; Ensworth Medical College and Hospital, St. Louis, Mo.; Electro-Medical Mfg. Co., Chicago, Ill.

Fuller's Newspaper Advertising Agency, Chas. H., Buffalo, N. Y.; Fassett, Chas. Wood, St. Joseph, Mo.

Gage, M. R., Phoenix, Ariz.; Gifford, H., Omaha, Neb.; Gerstein, Morris, Boston, Mass.

Harnsberger, Stephen, Catlett, Va.; Hudson, A., Boston, Mass.; Hummel Advertising Agency, A. L., (2) New York, N. Y.

Jayne, W. A., Denver, Colo.; Johnson & Johnson, New Brunswick, N. J.

Karger, S., Berlin, Germany; Klein, W. L., Minneapolis, Minn.; Koch, J. M., Philadelphia, Pa.

Love, I. N., (2) St. Louis, Mo.; Lettenberger, J., Milwaukee, Wis.

McMurtry, S. L., Louisville, Ky.; Martin, S. C., St. Louis, Mo.; Malsbary, Geo. E., Cincinnati, Ohio; Mills, Harry B., (2) Philadelphia, Pa.; Mastin, C. H., Mobile, Ala.; McKesson & Robbins, New York, N. Y.; Mellier Drug Co., St. Louis, Mo.

Pearse, H. E., Kansas City, Mo.; Parmele Co., Roome, Chas., New York, N. Y.; Polk, R. L. & Co., Chicago, Ill.; Pheno-Bromate Chemical Co., The, New York, N. Y.; Patch, Wm., Stanford, Ill.

Queen & Co., Philadelphia, Pa.

Riley, E. A., Hoyt, Kans.

Spencer Lens Co., Buffalo, N. Y.; Seeley Mfg. Co., Pittsburg, Pa.; Sharp & Dohme, New York, N. Y.; Smith, Q. C., Austin, Tex.; Stokes, Wm. R., Baltimore, Md.; Shoemaker, J. V., Philadelphia, Pa.; Sutton, J. E., Canton, Ill.; Schaefer, C. R., Indianapolis, Ind.; Schering & Glatz, New York, N. Y.; Steele, R. H., Elgin, Ill.

Tissen, E., Berlin, Germany; Tracy, J. L., Toledo, Ohio.

Vapor Lamp Mfg. Co., Brooklyn, N. Y.

Wheeler, Chas. Le Roy, Scranton, Pa.; Whitmore, B. T., New York, N. Y.; Wyckoff, R. M., Brooklyn, N. Y.; Wabash Railroad Co., St. Louis, Mo.; Whitford, Wm., Chicago, Ill.; Witler, G. F., San Jose, Calif.

PAMPHLETS RECEIVED.

Acute Empyema of the Frontal Sinus. By Ralph J. Wenner, Cleveland, Ohio. Reprinted from Cleveland Jour. of Med.

Annual Report of Cincinnati Sanitarium. Paper. Illustrated. Pp. 20. 1897.

Annual Report of John Crerar Library for 1897. Paper. Pp. 30. Chicago: 1898.

Aural Complications in the Acute Infectious Diseases. By William A. Dayton, N. Y. City. Reprinted from the Post-Graduate.

Brain Surgery, Some Cases of. By Hal C. Wyman, Detroit, Mich. Reprinted from the Med. Age.

Carcinoma of the Stomach, the Treatment of. By J. M. G. Carter, Waukegan, Ill. Reprinted from International Clinics.

Cigarettes, The Truth About. Papers before the Medico-Legal Society of N. Y. Reprinted from the Medico-Legal Journal.

Constitution and By-Laws of Boston Med. Soc. Paper. Pp. 12. 1898.

Constitution of the Am. Neurological Association, Officers and Members. Paper. Pp. 8. 1898.

Diabetes Mellitus, The Prodromic Stage. By Heinrich Stern, N. Y. City. Reprinted from N. Y. Med. Jour.

Does the Theory that Typhoid Fever Can be Aborted Conflict with any Established Law of Pathology, or with any Known Scientific Fact. By J. E. Woodbridge, Cleveland, Ohio. Reprinted from Med. News.

Does Wilhite's Story of the Negro Boy Incident in the Discovery of Anesthesia "Lack Probability?" By J. O. Wilhite, Anderson, S. C. Reprinted from Johns Hopkins Hosp. Bul.

Harvard University Summer School, Announcement for 1898. Paper. Pp. 98. Cambridge.

Infectious or Contagious Diseases that May Reach our Towns or Cities, What Steps Should be Taken in Dealing with First Case or Cases of. By Quitman Kohnke, New Orleans, La. Paper. Pp. 8. New Orleans: 1898.

Infectious Diseases, the Prevention of. By J. M. G. Carter, Waukegan, Ill. Reprinted from Jour. A. M. A.

Inguinal Operation for Femoral Hernia; The Other Kidney in Contemplated Nephrectomy. By Geo. M. Edebohls, N. Y. City. Reprints.

Medicine Philosophically Considered. By O. Everts, Cincinnati, Ohio. Reprinted from Lancet-Clinic.

Neurological Cases Successfully Treated, Brief Mention of. By Irving C. Rosse, Washington, D.C. Reprinted from the Va. Med. Semi-Monthly.

Pelvic Surgery, Some Conclusions Drawn from Experiences In; An Exhibition of Radiographs with Remarks. By A.V. L. Brokaw, St. Louis, Mo. Reprints.

Pulmonary Abscess and Gangrene. By C. F. Withington, Boston. Reprinted from Boston Med. and Surg. Jour.

Quarantinable Diseases. By Warren E. Anderson, Pensacola, Fla. Paper. Pp. 4.

Recurring Internal Ophthalmoplegia. By Howard F. Hansell, Philadelphia. Reprinted from Ophthalmic Record.

Trade Pamphlets.

Anatomical Excerpts. The Palisade Mfg. Co., Yonkers, N. Y.

Calendar. Helvetia Milk Condensing Co., Highland, Ill.

The Possibilities of Antitoxin in Diphtheria. By Geo. Suttie, Detroit. Reprint from Louisville Med. Monthly. Parke, Davis & Co., Detroit, Mich.